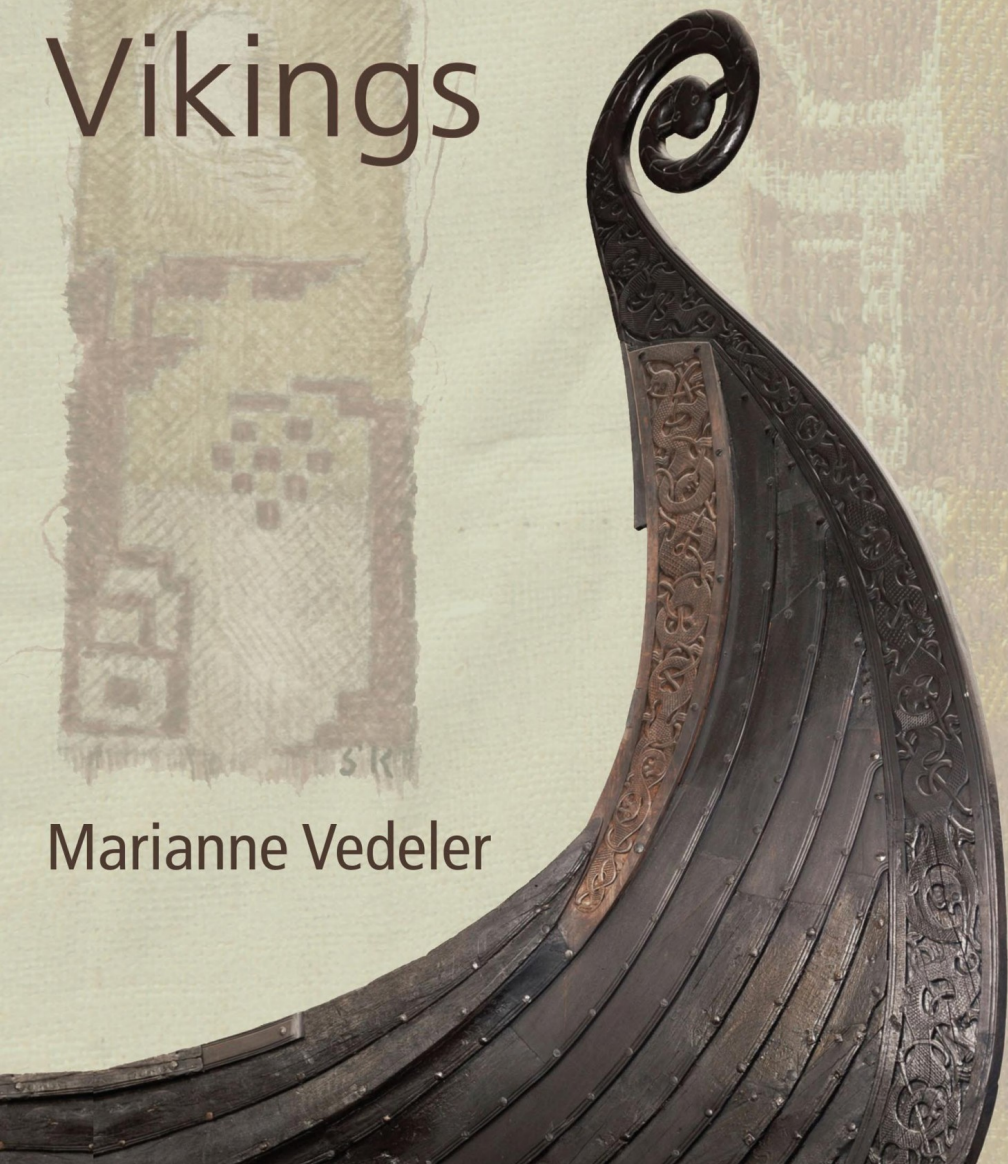


Silk for the Vikings

Marianne Vedeler

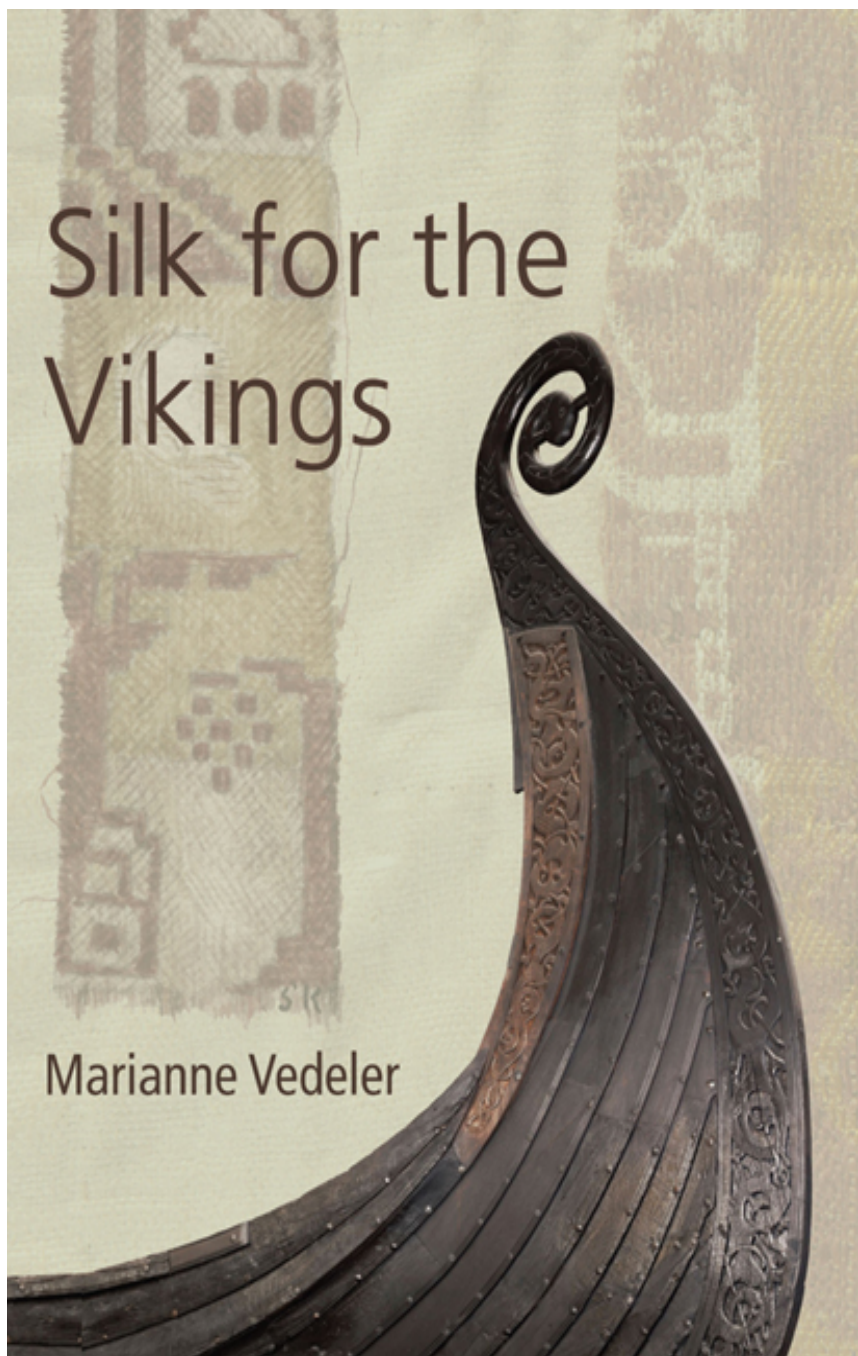


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Ninth Century silk embroidery from Oseberg, Norway (No. C55000/377/12B1). Watercolour by Sofie Krafft. © Museum of Cultural History, UIO

SILK FOR THE VIKINGS

Marianne Vedeler



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ABBREVIATIONS

BM Bergen Museum

KHM Kulturhistorisk museum, Universitetet i Oslo (Museum of Cultural History,
University of Oslo)

NM Nationalmuseet København (The National Museum of Denmark)

SHM Statens Historiska Museum (The Swedish History Museum)

INTRODUCTION

This book is about the precious and beautiful items of woven silk, and of all the hands that touched them on their way to the far north in the Viking Age. My first serious introduction to Viking Age silk started with a museal audit on all items found in the Oseberg ship burial from the 9th century in Norway. The Museum of Cultural History at the University of Oslo, where I work, had decided to move the large collection of textiles to brand new storage facilities. Consequently, the collection had to be systematized and the textiles repacked. This work provided an opportunity to gain more insights into the textiles, as such processes often do. Searching for the context and meaning of these textiles, I found myself digging deeper into the background of the silk trade and exchange with Scandinavia during the Viking Age.

The Viking Age, with its expansions and conquests, but also its marvellous crafts, remains an important issue for Scandinavian identity and self-consciousness. I find, however, that the most fascinating thing about the silk finds from this period is the expression of plurality, of cultural meetings and of change. By the hands of Zoroastrian, Jewish, Muslim, Christian and heathen producers and tradesmen, the silk products found their way even to the lands far north. People over a large part of the world used similar products for different purposes and interpreted them with varied meaning.

The book focuses on the 9th and 10th centuries, with small digressions to both sides of this period. The first two chapters deal with silk products found in Scandinavia. Even though the number of silk finds from this period is small, new finds emerge as I write. The northernmost silk finds presented here, from a male burial in Ness in northern Norway, was still in preparation when this book was written. I hope that greater awareness about the existence of silk in Viking Age graves may lead to more finds.

Many of the Scandinavian silk finds await profound technical analysis, but contributing to this is not the main aim of this book. Instead, I wish to take a closer look at the trade routes and the organization of production, trade and consumption of silk during the Viking Age.

The book begins with a presentation of the silk finds in the Oseberg burial, which is the richest Viking burial find ever discovered. The other silk finds from high status graves in Scandinavia are presented in Chapter 2. The presentation of finds is followed by a brief introduction to techniques used to produce raw silk and fabrics, in Chapter 3. The following chapter concentrates on silk trade and exchange. Here I take a closer look at the exchange of silk, both as trade items and precious gifts, and discuss the silk in the light of coin finds. In Chapter 5, I try to follow the main trade routes of silk to Scandinavia along the Russian rivers, and

also take a closer look at comparable finds in Russia. To get some more insight into silk production and the organization of silk exchange, Chapter 6 presents the production and regulations in Persian and early Islamic production areas and Chapter 7 in the Byzantine Empire. These are the main areas of provenance for the silk products found in Scandinavian Viking Age graves. Chinese silk is very rarely found in Scandinavia, even if one or maybe two fragments of silk found in Sweden may have been made there. The large and complex silk production in China is therefore omitted. In the last chapter I have tried to look briefly at silk as a social actor in various contexts in Viking societies compared to the Christian west.

SILK FROM THE SHIP BURIAL AT OSEBERG, NORWAY

The Oseberg grave mound is situated in the valley of Slagendalen in Vestfold, Norway. Two women were buried here in a large ship grave in the 9th century. This may be the richest and best preserved Viking Age grave discovered so far.

The mound was excavated in 1904 by Professor Gabriel Gustafson of the University of Oslo and his team. They discovered an extravagantly decorated and well preserved Viking ship and a large amount of artefacts. Items of personal adornment, household equipment, farming and textile tools and marine equipment were among the grave goods. Vehicles, including four sledges and a wagon, were placed in the forward section of the ship, where the remains of horses, dogs and oxen were also found. A triangular grave chamber hosted a large amount of personal equipment and textiles, among these well preserved silk fabrics. The Oseberg grave chamber is dated by dendrochronology to the year c. 834, giving the silks this year as a *terminus ante quem*.¹ It is possible, and not unlikely, that these silks changed hands through one or more generations, prior to the burial.

The remarkable amount of preserved textiles found in the grave was recognized at an early stage as an important key to further understanding of the burial, as we can see from this statement in the first volume of the main Oseberg publications:

These textiles are among the rarest and most precious in the whole Oseberg find, and will be extensively discussed in a later volume where it should be highlighted that these quantities of fabrics and down form a significant feature of the burial facility.²

Different scholars have been working with the textiles from Oseberg in the last 100 years, but a full catalogue was not published until 2006, when Arne Emil Christensen and Margareta Nockert collected and edited earlier manuscripts and published them together with their own results in the fourth volume of the main Oseberg series.³ The extraordinary amount of textiles in this grave included a large variety of fabrics made wholly or partly of silk.

The largest group of silk fabrics consists of 110 fragments made in the complex weave called weft-faced compound twill or *samite*. These fabrics have been cut into narrow strips and were probably used as decoration on clothing. In this single grave, *samite* fabrics from several production areas and of different qualities have been collected. The variety of qualities produced within each area, or even within each production site, shows that fabric quality should not only be seen as a regional marker but rather as a marker of social and economic status.⁴ In the light

of this it is, by first sight, puzzling that silk fabrics of both higher and lower quality are to be found in Oseberg. Part of the explanation for this may be different attitudes towards silk in Scandinavia and the areas of production in the Viking Age. The concentration of silk finds in high status graves in Scandinavia suggests that even lower quality silk products was highly valued in this region.⁵





Fig. 1. The Oseberg mound and ship. Photo: Marianne Vedeler (mound) and © Museum of Cultural History, UIO (the Oseberg ship)



Fig. 2. The excavation team at Oseberg in 1904. Photo: © Museum of Cultural History, UIO

A second category of silk products is a collection of 12 fragments of silk embroideries. The use and function of these are difficult to interpret, but it seems clear that larger embroideries had been cut into smaller pieces and sewn onto a fabric, now disintegrated.⁶ Their origin and place of production is another puzzle. Pattern figures points to both west European, especially Anglo-Saxon, but also to Scandinavian ornamentation.

The grave goods of Oseberg also include tablet woven bands of wool and silk. These are probably local products. The use of silk threads in combination with wool in the tablet woven bands indicates that silk had been imported in the form of thread to Scandinavia as early as the 9th century. The Oseberg bands were mainly used as borders on interior textiles, some of them still bonded to tapestries.

Most silk fragments were found in a compact 'cake' of different textile qualities, down inside the grave chamber on the eastern side.⁷ Both cultivated and wild silk fibres have been identified.⁸

Sofie Krafft

Today, the colours and patterns on the Oseberg silk fragments are no longer easy to see. The colours, once so bright on the textile surface, have faded considerably, and it is now very difficult to carry out visual studies of the patterns. In the years after the excavation of Oseberg in 1904, it was still possible to see many of the original patterns on the silks, and these were documented in the form of aquarelle sketches made by Sofie Krafft.⁹ Krafft was engaged as an illustrator of the Oseberg

finds from 1907. She drew 41 of the approximately 110 preserved samite silk fragments. She put the textiles in baths of water, and drew the patterns as she saw them through the water surface. In the following years the patterns faded quickly, in spite of the fact that they were not displayed. The aquarelles by Krafft have therefore been of great importance for later studies.

In the years when Krafft made her drawings of the Oseberg silks, archaeology was a relatively young science, with a variable standard for documentation. But Krafft was presumably very aware of her responsibility to document the textiles accurately. In one of her publications she states: "The first thing my boss told me was that I ought to be *true*, and not let my fantasy or a presumption that this and that probably was the case, interfere. I should draw what I saw simple and clear and that's that."¹⁰ Still, as with all other drawings and texts, these aquarelles are to be seen as an interpretation, bearing with them the visual understanding of their present time.¹¹

In 2010, the Museum of Cultural History in Oslo decided to carry out a small documentation project on the Oseberg silks. The goal of this project was to find new methods for studying and documenting the patterns that are still preserved on the fabrics. We wanted to study the fragments that Sofie Krafft did not draw, but also to study similarities and differences between her drawings and the patterns still preserved on the fabrics. A comparison between our UV photos and Sofie Krafft's sketches shows that her drawings are executed with great accuracy and consciousness about documentation standards. Several fragments that were not drawn when the colours were clear can be observed through the UV photos.¹² All the silk strips from Oseberg are made in a weftfaced compound twill technique with a single inner warp.¹³

Mutual interactions among Byzantine and Central Asian silk production centres make the identification of more specific production sites difficult.¹⁴ It is striking that very few early medieval silk fabrics have been found within the production areas. Consequently, the interpretation of the areas of origin is first and foremost based on comparisons with other forms of art, on historical sources and on technical studies of fabrics. Some silk fabrics also have inscriptions connecting them to specific Byzantine or Muslim rulers, but this is not the case for the Oseberg textiles.

Cut and Use

The majority of the samite fragments have been cut to form narrow strips, approximately 0.5–1.9 cm wide. Some of them have been cut in the direction of the warp while others are cut in weft direction. The strips are folded along the long sides and needle holes show that the strips were once sewn onto another fabric. The same treatment has been given to silk fragments found in other Scandinavian graves. In addition to the straight and narrow silk strips, 17 of the preserved fragments found in Oseberg have been cut in rectangular or rounded shapes and formed into circles, leaves, an arc-formed shape and V-forms. Most of them were found together in association with or nearby the straight samite strips, but one of the leaf-formed fragments was found in 2008 in a large amount of down from the grave chamber.¹⁵

The documentation from the excavation concerning the micro-context of these

finds is sparse. One of the first researchers working on the textiles, Hans Dedekam, noted that some of the silk strips were attached to a fine wool fabric. On some of the strips traces of a carbonated substance were observed. The same black substance can still be observed on a number of other textile fragments. Analysis of the substance showed it to be pure carbon from decomposed vegetable fibres.¹⁶ There is a strong possibility that the substance is remnants of linen.

There can be no doubt that the silk strips were once sewn onto another fabric, or possibly several other fabrics of both linen and wool. It is reasonable to assume that the strips have been used as decoration and as trimming on garments. Similar cutting and needle-holes are also found in a number of other Nordic graves, for example the graves from Mammen, Haugen Rolvsøy, Birka, Tuna and Tusinge, as well as in Russia.¹⁷



Fig. 3. Aquarelle by Sofie Krafft, made while the colours were still visible. Silk fragment 28, Fabric No. 5, from Oseberg. Photo: Ann Christine Eek. © Museum of Cultural History, UIO



Fig. 4. Silk fragment C55000/377 Fabric No. 3 from Oseberg. Photo: Marianne Vedeler

The pattern report has not been taken into account when the strips were cut out of the fabric. Furthermore, the fabric has been cut in both directions, more often in

the warp direction than the weft. Some fragments have been sewn onto another fabric with the right side turning out, but quite a few of the fragments have had the reverse side turning out. The samite weave gives the fabric clear front and reverse sides, the front being clearly recognizable by its shiny surface.¹⁸ A closer look at some of the fragments revealed what might be an explanation. On the original fabric cover side, the fragments bear traces of hard wear.¹⁹ Thus, the worn-out front sides were hidden when the strip was sewn on, showing that the silk strips have had a long history of use. The high value of these products in the northern countries, in terms of both status and silver/money, might have led to long time of circulation.

The Samite Fabrics

The variety of samite fabrics found in Oseberg, the differences in qualities, patterns and places of production in one single grave, make them an important source of information to the silk trade and its use in Scandinavia during the Viking Age. To explain this variety it is necessary to describe the fabrics in some detail.

In the first publication of the Oseberg silks, Margareta Nockert grouped the samite silk fragments in 15 different fabrics, mostly on the basis of the weave, but also with the help of the old sketches of patterns.²⁰ The potential of complexity of patterns in each of these makes it difficult to know the exact amount of original fabrics. The textiles were cut into narrow strips in the Viking Age, making the variety of patterns in each fabric difficult to divide. There is a possibility that the number of fabrics was originally significantly less than 15. Based on weave and spinning details catalogued by Nockert, production quality and patterns, three main groups of fabrics will be presented here.²¹ A list of all samite fabrics found at Oseberg is provided at the end of this chapter.

Group 1: Lower Quality Fabrics with Z-spun Warp (Fabrics 1–11)

This is the largest group of samite silk fabrics found in Oseberg, having z-spun, single main warp and wefts mainly without visible spinning. The order of colours in the weft of a samite fabric can switch, making several colours available to build up a pattern. This technique, called *latté*, has been used in all fabrics in this group.

These are simple products with many weaving mistakes and recursive unevenness in the pattern reports and must be considered as silk products of lower quality. As several authors have pointed out, establishing the provenance of early medieval silks is extremely difficult, not least due to the lack of find contexts and biography.²² Still, the combinations of patterns of these fabrics points to Central Asia as a probable production area.

FABRICS 1–7

Fabrics labelled Nos 1–7 by Nockert technically comprise an homogeneous group, and had it not been for the differences in patterns, all these 62 fragments may have originated from the same fabric. They are all in samite with a single inner warp. They have, like the majority of samite silks from Oseberg, z-spun main warp and weft without visible spinning. But in contrast to Fabrics 8–11, some z-spun weft threads have been used between the majority of unspun weft threads.²³ The z-spun weft threads are dyed red, and they are thicker than the majority of unspun

weft threads. All the fabrics in this group are relatively unevenly woven. Four fabrics have 16–20 threads per cm in the warp and 22–30 threads per cm in the weft. The remaining fabrics in this group (fabrics 4–6) have a slightly more balanced weave, with 20 (26) threads per cm in the warp and 22–26 threads per cm in the weft.²⁴ The colours and patterns on many of these fragments have now faded, and both colours and patterns are often difficult to recognize.

BIRDS AND AXE-CLOVERS FROM CENTRAL ASIA

The largest number of silk strips in one fabric consists of 33 fragments, called Fabric No. 1. The fragments can be characterized by a relatively uneven weave with a thread count of 16–20 per cm in the warps and 22–30 in the wefts. The twill-diagonal is s-oriented.

Fabric No. 1 has two wefts, both in latté with weft order a.b.a.b.²⁵ One weft thread is red, rough and unevenly z-spun. The other weft threads are thinner, white, green or black and yellow without spinning. Sixteen fragments are mounted with the reverse side turning out,²⁶ while other fragments are mounted with the original front side turning out.²⁷ Nockert suggests a provincial Persian origin.²⁸

When discovered in 1904, the colours and patterns were still visible. Today, the colours can be described as light brown, golden and dark brown with hints of red on some of the fragments. Experiments with UV- and IR-photography were conducted in 2010.²⁹ Through UV photography some of the patterns became visible, while others had faded completely. A special type of pattern revealed itself clearly through the UV photography on many of the fragments. This consists of horizontal rows with geometric figures looking like a mix of double-axe and trefoil (called 'axe-clover'). Between the rows of axe-clover can be seen vague outlines of octagonally-shaped patterns.

The axe-clover pattern is visible in 12 of 33 fragments in the group called Fabric 1. Some of these fragments have been drawn by Sofie Krafft. If we compare the drawings and the UV photos, it becomes evident that this pattern appears much more clearly than other patterns previously exposed on the same fragments. Krafft described these fragments in 3–4 colours in her drawings; red, brownish black, beige and yellow. The axe-clover is described as beige on a dark brown to black background (and the opposite on the other side).

The dye used in the axe-clover pattern is still a puzzle. So far, only a single sample has been taken for HPLC-analysis from one of the axe-clovers on Fabric 1, but no dyes were detected.³⁰

Both the double-axe pattern and the trefoil-pattern appear on many Central Asian silks in European and Russian collections. The characteristic double-axe on samite silks from Moščevaja Balka in northern Caucasus has been interpreted as a Zoroastrian symbol associated with the zodiac cycles.³¹ However, this double-axe pattern is shaped differently to the axe-clover from Oseberg, and the fabrics also differ in several aspects concerning weaving technique. One feature that defines the motifs on the Oseberg textiles is that they nearly always have a pearl-formed outgrowth from the 'neck' of the double-axe shape. Another difference is that the 'axe-blades' in the Oseberg-motif do not bend backwards as they do in the majority of double-axe motifs on silks from Moščevaja Balka.³² The motif on the Oseberg silks could just as well be seen as a hybrid between the double-axe motif and the clover leaf motif that appear in several European samite silks, though the clover

leaf is usually composed of four hearts. Some of these have been attributed to a Central Asian origin, some to a Byzantine or eastern Mediterranean tradition.³³

Several parallels could be pointed at, but one of the closest is a fabric formerly used as a relic purse in Musei Vaticani in Rome. In the pattern, a pair of ducks facing each other can be seen placed on a pedestal. The duck motif is interlaced with bands with several motifs that also can be found on the Oseberg silk strips. On top and at the sides of the bird-motif we can see the same axe-clover motif again, red or yellow against a light background. In this fabric, the axe-clover motif is almost identical to Oseberg. The textile analysed by Dr Loredana Boero is made in 3/1 weft-faced compound twill, with a single z-spun main warp and a binding warp without spinning. The weft, on the contrary, is without recognizable spinning. It has 22–24 warp threads per cm and 28–30 threads in the weft. As in the Oseberg material, its twill-diagonal is s-oriented. The colours used in the weft are now purple red, deep and light yellow and plain white (with a slight prevalence of red on the recto).³⁴ As can be seen, both weaving technique and pattern are comparable to Fabric No. 1 found in Oseberg.

Volbach dates the relic purse in Rome to the 11th–13th centuries, primarily based on the fact that the same type of bird is to be found in Sassanid textiles, but that in the relic purse seems decayed and barely recognizable compared to the Persian prototype.³⁵ Volbach suggests the provenience to be Asia Minor.³⁶ Both dating and assumed provenience in this case seem vaguely founded. Unfortunately, the information about the former use and context of the relic purse has been lost.

The duck-motif is central on the relic purse from Rome. In Sofie Krafft's sketch, a possibly bird-shaped figure can be seen between the rows of axe-clover and octagonal shapes. This pattern is not visible on the UV photo of the same fragment. But a bird-motif is also visible on another of Krafft's drawings, a duck with a pearl-formed shape in its beak.³⁷ This fragment has unfortunately disappeared since 1940 and is no longer to be found in the Museum of Cultural History collections. We do not know the technique details of this lost fragment. On Krafft's aquarelle, the bird is red on an alternate white (head) and yellow (body) background. The birds in the relic purse from Rome are outlined in white against a red background (heads) or in deep yellow against a lighter white shade (bodies).



Fig. 5. Fragments of silk from Fabric No. 1 from Oseberg, as drawn by Sofie Krafft. From top left: C55000/377/12/1, 2, 39, 11, 15, 16, 7, 32, 31, 35. Photo: Ann Christine Eek. © Museum of Cultural History, UIO



Fig. 6. Relic purse in Museo Cristiano, inv. 61265 in the Vatican Museum's collections Photo: © Vatican Museums



Fig. 7. Bird-fragment as drawn by Sofie Krafft. Photo: Ann Christine Eek. © Museum of Cultural History, UIO

The bird with a pearl tiara in its beak has a special position in Persian art. The

bird-with-necklace-motif is present in Sasanian decoration art, in metalwork as well as in wall decorations. The name of this special bird is *Shahrokh* in Old Persian, literally meaning 'kingbird'. The bird has been interpreted as a reference to the idea of *kvarnah* or heavenly blessing.³⁸ The *Shahrokh* is, in this interpretation, the bird giving heavenly blessings to the king as ruler. In Zoroastrian mythology, *kvarnah* is taking the shape of this bird when a king loses his power. The *Shahrokh* bird is delivering the blessing, *kvarnah*, to the new king-to-be.³⁹

But motifs similar to the Sasanian were picked up and used in a widespread area even after the fall of the Sasanian Empire in the mid-7th century.⁴⁰ In the Sogdian area, now in Uzbekistan and Tajikistan, silk fabrics adorned with similar Sasanian motifs were probably produced in the 8th and 9th centuries. Wall decorations depicting clothing with a *shahrokh* motif are known from several sites. A good example is a duck with a pearl necklace in its beak that is present on a fresco in the Aphrasiab-palace in Samarkand, a main city of Sogdiana. The motif has been interpreted as showing the king of Samarkand receiving three ambassadors, all with gifts in their hands. All three are dressed in richly decorated garments adorned with motifs known from early medieval silk art. One of the dresses shows ducks bearing a pearl necklace. The fresco is dated to the 7th century.⁴¹

From written sources, we know that there was a Tiraz-fabric in Sogdiana in the Abbasid period.⁴² Anna Ierusalimskaja sees the ducks with pearl tiara as a Sogdian syncretisation of the Chinese Tang-duck and the Sasanian pearl-necklace.⁴³ Similar patterns are also present in Astana, Turfan.⁴⁴

In Pendshikent, a Sogdian Resident dating to the 7th/8th century has been excavated. Here, another well-preserved wall painting shows this motif in an interesting context. Here a flying bird with a band or necklace can be seen coming to the king who is stretching out his hand. Belenizki interprets this as a representation of a legend in which the bird announces the election of the king in a dream, flying to him with a crown in its beak.⁴⁵

As we have seen, both the weaving technique and the patterns of Fabric No. 1 from Oseberg suggest Central Asia as their place of production. Although the precise place of production is not known, there is a good possibility that they once were made in Sogdiana.

HEARTS AND TREES

Fabric No. 3, consisting of eight fragments, constitutes the best preserved samite silk found in Oseberg. The colours and patterns are still visible on many of the fragments, the remaining red colour now dominating. The good condition has opened a possibility for deeper investigation of the pattern structure. This is a fabric made in 2/1 weft-faced compound twill (samite) with two weft threads and colour change (latté) constructed in this order: A (pattern): white/green (or black), B (background): red/yellow/green (or black). As in fabric 1, one weft thread is red, rough and unevenly z-spun. The weft density varies considerably.

A stylized tree with two branches hanging down from the top is a central motif. The motif height varies considerably within a single fragment. The colour of the tree is white, standing on a white foot or base against a black (originally possibly green) background. Another central motif is rows of filled and open hearts. The same row of hearts is to be found on a fragment also visualizing what might be a

bird.

Latte-coloured stripes	Pattern on front side
White/red	Bird's head, white on red background
Black (or green)/red	Bird's neck, white on red background
Black (or green)/yellow	Bird's body and tail? Black (or green) with yellow decoration on yellow background?
Green (or black)/red	Bird's tie in black (or green) on red
White/red	Bird's feet, podium and tree in white on red background
White/black (or green)	Tree base and hearts on white on black (or green) background.

Fig. 8. The orders of colours and patterns in Fabric No. 3 from Oseberg, analyzed by Martin Cizuk

The red colour in one fragment has been tested for remnants of dyestuff, showing to contain remnants of madder.⁴⁶

Martin Cizuk made the following analysis on the order of colours and patterns, observing that the order of colours in these fragments of Fabric No. 3 are equivalent to the lost 'bird fragment' of Fabric No. 1.⁴⁷

Fragments 26H, 36 and 77 have a double inner warp thread (in this case a weaving mistake) on the same spot in the pattern and was originally placed beside each other. Remnants of seams along the edges show that the strips were sewn onto another fabric with the reverse side facing out. The silk fabric was worn out on the front side.

FABRICS 8–11

The fabrics in this group, Nos 8, 9 and 11, have much in common with Fabrics 1–7. The main difference is that this group does not have thick, single z-spun weft threads mixed in. All weft threads are without traceable spinning while the warp threads are z-spun. As in group 1, the fabrics are relatively unevenly spun and have a lot of weaving mistakes. This is particularly evident in the weft. The density in the warp varies between 16 and 22, and in the weft 20–34 threads per cm.⁴⁸

Fabric No. 8 will serve as a representative for this group. This fabric consists of two fragments with different motifs. On Sofie Krafft's aquarelle, the necks of two birds, possibly with pearl necklaces in their beak, can be seen facing each other on fragment no. 4. The pattern has now faded, leaving just vague contours of two curved shapes on the surface. The other fragment, no. 13, is better preserved. The original pattern can still be seen. In one end, the lower end of a rectangular structure is divided in at least two colours. Besides this structure is a line of ax-clover figures similar to the pattern of Fabric No. 1. This fabric has two wefts, both made in latté, in the order a.b.a.b. White (or yellow?) colour is followed by a thicker blue-red weft thread in the passé.⁴⁹

Fabric No. 9 shows great technical similarity between the fabrics with- and without single z-spun weft threads, and the reason why they belong to the same main group. As in Fabric No. 8, this fabric has two wefts, both made in latté, in the order a.b.a.b. As in Fabric 8, the red, thicker weft thread is mainly apparently unspun, but in this fabric there are visible traces of spinning in the red weft in some parts but not in others.⁵⁰ The fibres in the fabric are fragmented, and the red weft thread partly without traces of spinning clearly shows the difficulty of analyzing these textiles.

Group 2: Higher Quality Fabrics from Byzantium or the Eastern Mediterranean (Nos 12–13)

Fabrics Nos 12–13 are characterized by evenly woven textiles. As for fabrics 1–11, these textiles have a z-spun single main warp and no traces of spinning in the weft. The twill diagonal in fabric 12–13 is also s-oriented. But weaving and spinning quality as well as patterns differ from Fabrics 1–11. The warp threads are fine and evenly spun, and fewer weaving mistakes can be observed. The expensive dyestuff made of *Kermes vermilio* has been used in combination with the less expensive madder in one of the fabrics. The patterns suggest that these fabrics are produced in Constantinople or in the eastern Mediterranean area associated with Byzantine silk production. The combination of weaving, spinning and use of dyestuff could suggest that these fabrics could be characterized as medium- to high quality fabrics in the Byzantine value system for textiles, but that the products should not be considered to be in the highest superior class of silks. This is, however, a difficult question to interpret.

REMNANTS OF BYZANTINE HUNTERS?

The most interesting fabric in this group, No. 12, consists of 13 fragments with a z-spun single main warp and no traces of spinning in the weft.⁵¹ The density of the weave is 18–20 threads per cm in the warp and 28–32 threads per cm in the weft. Two wefts can be recognized, in this fabric without lattè colour change.⁵² The twill-diagonal is s-oriented. The weave is smooth and has an even texture. The fabric originally had a pattern of large medallions with both figurative and geometrical motifs. Since the fabric was cut into narrow strips in the Viking Age, only parts of the motif can be recognized.

Comparing Sofie Krafft's drawings of two fragments with the preserved silk, Nockert identified parts of a human figure dressed in a green tunic framed in a medallion. A 4.5 cm wide band marks the frame of the medallion, which is made with heart-shaped flowers and pearl bands.⁵³

When photographed with UV light in 2010, what might be two legs and the back of an animal could be recognized as well as part of a large medallion, possibly framed with heart motifs and pearls. The 'legs' are elegantly formed.

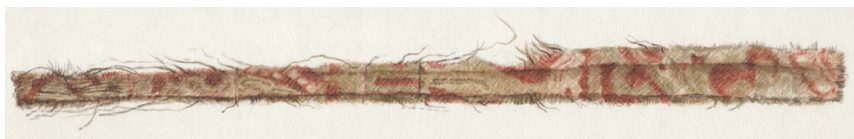


Fig. 9. Sofie Krafft's watercolour sketch of fragment C55000/377 no. 40, Fabric No. 12 from Oseberg. Photo: Ann Christine Eek © Museum of Cultural History, UIO

Sofie Krafft painted one of the largest fragments of Fabric No. 12 in two colours, a red main colour with the pattern in light yellow. The fabric probably once had three colours. Today, the colours have faded, leaving most fragments with a light brown main colour with fields of dark brown and pale red. The main background colour might have been red.

When analyzed, the light brown main colour showed no traces of dye left in the fabric. However, the HPLC-analysis revealed that other parts of the pattern had

been dyed with a combination of madder and the precious dyestuff from *Kermes vermilio*.⁵⁴ The shield-louse *Kermes vermilio* produces a scarlet dye that was highly cherished. The bright red dye is obtained from the eggs of the female insect. The use of *Kermes vermilio* for dyeing was described in the works of Theophrastus and Pliny.⁵⁵ Kermes feed only on the Kermes oak tree (*Quercus coccifera*) found in the Mediterranean area and on the eastern Adriatic coastline. Dominique Cardon has claimed that Kermes is the most expensive red dye that ever existed, based on medieval price lists showing that this dyestuff alone could make up the cost of more than 60% of the total price of a cloth.⁵⁶ A 13th century source highlights the exclusiveness of Kermes “with which the most precious fabrics of kings are dyed”.⁵⁷ In the silk from Oseberg, the very precious Kermes dyestuff is mixed with the cheaper madder, suggesting a high class product but within reasonable limits.

Fabric No. 12 from Oseberg has been associated with a widely discussed group of silks from church treasuries around Europe, often called ‘hunter silks’. Comparable silks have also been found at two central archaeological sites in Russia, namely Moščevaja Balka in northern Caucasus and Pskov in north-west Russia.⁵⁸ The motifs on these hunter silks are, as the name predicts, hunting scenes showing a fight between men and animals. A group of ‘hunter silks’ with single main warps was included in a group interpreted as Alexandrian by Otto von Falke in 1913. Since then, the group has been widely discussed and the provenience placed in Egypt, Syria or Byzants.⁵⁹ Most scholars seem to agree that these silks were made somewhere in the Mediterranean region, in the area associated with Byzantine silk production. It has even been argued that the Imperial Byzantine workshops may have played a significant role in the development of these single main warp fabrics with hunter motifs.⁶⁰ Ierusalimskaja suggests that the piece found in Moščevaja Balka is of either Byzantine or Syrian origin.⁶¹

Group No. 3: Unspun Fabrics (Nos 14–15)

Two samite fabrics found in Oseberg are without traces of spinning in both warps and wefts, Nos 14 and 15. Both fabrics have noticeably higher density in the weft than in the warp, but are evenly spun and woven in fine quality yarn.⁶² The number of weft threads per cm is the highest of all textiles from Oseberg. Unfortunately, only smaller fragments of pattern can now be observed on the fragments.

These fabrics were probably produced in eastern Central Asia. Nockert suggests that they could have been made in Sogdiana or further east, and that they might be part of a group of silks called Zandaniji II produced in Sogdiana.⁶³ These are distinguished by main warps without spinning. In contrast to all silks from Oseberg, however, the Zandaniji II-textiles usually have a double main warp.⁶⁴ The lack of spinning could suggest a production area under the influence of Chinese sericulture, or even a possibility that the production area lay within the area of China’s north-west frontier. The weft-faced compound twill, or samite, was introduced to the Chinese textile technological repertoire in the period between AD 640 and 803. Several pieces of samite products with relatively simple design have been found in Turfan.⁶⁵

Fabric No. 14 consists of two fragments cut in weft direction and mounted with the front side facing out. In contrast to all other samite silks from Oseberg, these are made with z-diagonal in the weave.⁶⁶ The fabric has three wefts made without

latté, in the order a.b.c.a.b.c.⁶⁷ The colours and patterns are badly preserved. A fair, stair-shaped contour on one fabric and what might be a circular shape is all that is left of the pattern. The colours are now yellow, red and brown. Unfortunately Sofie Krafft did not draw these fragments.

Fabric No. 15 consists of six fragments; one has been cut in the shape of an L.⁶⁸ All fragments are mounted with the front side facing out. Rectangular pattern figures recorded by Krafft are no longer visible, but there are remnants of red colour on some of the fragments. UV-photography showed curved and vague geometrical shapes.⁶⁹ The red colour in one fragment has been tested for remnants of dyestuff, showing it to contain remnants of madder.⁷⁰ As in Fabric No. 14, this fabric has three wefts made without latté, in the order a.b.c.a.b.c.⁷¹

Group	Fabric and Fragment nos	Threads per cm w/v (by Nockert)	Patterns (drawn by Krafft)	Spinning (main warp/weft)	Diagonal	Visible Colour (by Kraft)	Detected Dye (by Berghe)	Weft Order (by Cizuk)
1	1 (1, 2, 7, 9, 11, 15, 16, 31, 32, 35, 39, 43, 51, 53, 55, 58, 60, A–G, V–A, 30D)	16–20×22–30	axe-clover, bird, octagonal shape, star	z/0+z	S	red, black, white, yellow	tested, no dyes detected	a.b.a.b.
1	2 (10, 18, 20–23, 25, 42, 65, 75, M–P)	16–19×26–34 (occasionally 50 v)	geom. shapes, pointed shapes	z/0+z	S	black, red, white		a.b.a.b.
1	3 (26, 30, 36, 38, 74, 77, 26H, 12L1)	18–20×30–40	tree, heart, (bird?), geom. shapes	z/0+z	S	black, red, yellow	madder (alizarin)	a.b.a.b.
1	4 (27)	26×24	eight-petalled flower	z/0+z	S	black, red, white		a.b.a.b.
1	5 (28)	20×26	bird?, pointed oval shapes, geom., waleknot?, pearls	z/0+z	S	black, red, white		a.b.a.b.
1	6 (12, 71, 72)	20×22	eight-petalled flower, geom. shapes	z/0+z	S	black, red, yellow		a.b.a.b.
1	7 (14, 19)	19×26–30	geom. shapes, pointed shapes, flowers or stars	z/0+z	S	black, red, yellow		a.b.a.b.
1	8 (4, 13)	16–20×24–34	bird?, pearl, axe-clover, rectangular or quadrat shape	z/0	S	red, yellow		a.b.a.b.
1	9 (5, 6)	18–20×28–32	axe-clover, geom. ornament, tree	z/0	S	black, red, white		a.b.a.b.
	10 (66)	16×20	unidentified pattern	z/0	S	red, yellow		a.b.a.b.
1	11 (33, 34)	16×24–28	pearl, eight-petalled flower	z/0	S	red, black, white, yellow	tested, no dyes detected	a.b.a.b.
2	12 (29, 40, 54, 59, 62–64, 67, 69, 71, H–J)	18–20×28–32	medallions, geom. ornament, hearts	z/0	S	red, yellow, ??	Kermes vermilio, madder	
2	13 (8, 17, 57, K, Q, R)	20–22×20–24	geometrical shape	z/0	S	black, red, yellow		
3	14 (3, S)	24–26×36–40	unidentified pattern	0/0	Z			a.b.c.a.b.c.
3	15 (24, 61, 68, T, U, 12a2111)	18–20×34–38	unidentified pattern	0/0	S	pink, grey-green	madder (alizarin, purpurin)	a.b.c.a.b.c.

Fig. 10. Samite fabrics found in the Oseberg mound, after Nockert (2006, 283; all weave and spinning details). Weft grouping by Cizuk (2011). Patterns and colours described by Vedeler



Fig. 11. Silk embroidery C55000/377 no. 12B3 from Oseberg. Photo: E. I. Johnsen © Museum of Cultural History, UIO

Silk Embroidery

Silk embroidery in varied designs and patterns is also part of the large complex of textiles found in the Oseberg mound. Twelve single pieces, some of them probably belonging to the same fabric, are registered but there are also pieces of silk embroidery stuck in 'cakes' of textiles impossible to separate from other fabrics without being destroyed.⁷² Improved technology of CT-scanning will hopefully make it possible to separate the fabrics visually without damaging the precious material. The embroideries were once sewn onto other fabrics that are now gone, covering compact figured spaces. They may have been used for different purposes. One of the embroideries has been sewn onto a tablet-woven band and possibly also to a strip of samite silk.⁷³ This suggests that at least some of the embroideries may have been used as complex and exquisite decorations on clothing.

Only a small amount of embroideries dated to the 9th and 10th centuries have been preserved in Europe. The silk embroideries from Oseberg are the oldest found in Scandinavia.⁷⁴ The sparse amount of comparable pieces makes the interpretation of provenience even more difficult.

The sewing techniques used are split-stitch, stem-stitch, satin-stitch and laid-work.⁷⁵ The motifs vary from geometric to animal figures. One of the fragments even shows a cross, the Christian symbol in this case used in a heathen grave.

One of the embroidered fragments, 12 B 2, shows clear similarities to the Scandinavian animal style. The embroidered motif is a slender and dissolved animal figure with a pointed oval eye and curved lines. The ending part of the lines could be interpreted as either feet or leaves. The colours of the embroidery have faded, but it is possible to see that the silk threads were originally in at least three colours. A similar motif can be seen in a series of sword sheath brackets dating to the 8th century, for example, a beautifully made piece from Hejnum, Gotland in Sweden.⁷⁶ The motif also shows a likeness with the later Urnes style, named after decorations on the Norwegian Urnes-church dating to the mid 12th century, characterized by the slender, dissolved animal and the curved loops. A variety of objects like brooches and mounts were made in the Urnes style in the Scandinavian area in the late Viking Age/beginning of the medieval period.



Fig. 12. Tablet-woven band of wool and silk from Oseberg. Museum no. C55000/377 34 D 1-2, Museum of Cultural History, UIO. Photo: Marianne Vedeler

The motifs on the embroidery from Oseberg have been interpreted as leaves and vines rather than as animal decoration, pointing to a similarity between the motifs on the embroideries and illumination art on the British Isles.⁷⁷ This is certainly true for a cross motif on one of the other embroidered fragments. There is certainly a possibility that the fragments of embroidery found in Oseberg might be of Anglo-Saxon origin and imported to Vestfold from the British Isles. But some of the embroideries may also be locally made artwork, made of silk thread imported to Vestfold.

Tablet Woven Bands with Silk

The Oseberg grave contained yet another category of textiles with silk. Fifty-one examples of tablet woven bands, most of them with several fragments of textiles, were found. At least two of these bands contain threads of silk. Band No. 12L1 has silk threads in both warp and weft, alternating with threads of badly preserved organic fibres.⁷⁸ This band is only 0.5 cm wide and made with 10 tablets. The band was found together with silk embroidery, strips of samite and diverse wool fabrics inside the grave chamber on the eastern side.

Another tablet woven band with remnants of brocaded silk weft was found in a ditch outside the grave chamber,⁷⁹ the so called 'burglars entrance', but has probably originally been part of the chamber interior. The band is c. 2.5 cm wide, and the two fragments have a total length of 32 cm. Thirty-six tablets have been used to make it. The weft consists of both wool and unspun silk thread. Part of the weft is missing.⁸⁰ Remnants of two shades of red are visible, apart from the silk thread that now appears golden-beige. The silk thread forms geometrical patterns. Wave-formed borders alternate with equilateral crosses, small diamond-shaped figures and swastikas.

Tablet-woven bands with geometrical patterns have a long tradition in Scandinavian textile Crafts starting even earlier than the 9th century.⁸¹ A number of such bands have been found in early Iron Age graves in Scandinavia. The materials used vary and includes wool, silk, metal-wrapped thread and possibly also linen thread. A combination of different materials is not uncommon. There are a number of tablet woven bands preserved from Viking Age high status graves in Scandinavia, often including metal-wrapped thread or silk thread.⁸²

It is reasonable to interpret the tablet woven bands found in Oseberg as part of a Scandinavian weaving tradition.⁸³ The find of a complete tablet weave, with warp threads still in place in the holes of the 'tablets', strengthen this theory.⁸⁴ If the tablet woven bands are locally made, the silk thread used in weft patterns must have been imported. It has been suggested that the band-makers may have re-used silk thread from unraveled fabrics.⁸⁵ This is unlikely, taking into account that most preserved silk fabrics found in Scandinavia from this period are made in samite technique. This is a complex weave structure hardly suitable for unraveling. An import of silk as thread for the use in tablet weave and embroidery seems to be a more likely explanation. Unfortunately, it has so far shown to be difficult to locate the production area for the silk thread used in the tablet woven bands.

1 Bonde and Kristensen 1993. This means that the silk must have been made before this date.

- 2 Schetelig 1917, 213, author's transl.
- 3 Christensen and Nockert 2006.
- 4 For variety of qualities in areas of production see Freshfield 1938; Jacoby 2004; Serjeant 1972; Piltz 1997.
- 5 For further discussions on this subject see Chapter 2 and Chapter 8.
- 6 Nockert 2006, 336.
- 7 Cake No. 12.
- 8 Rosenquist 1969, 296.
- 9 Krafft 1955, KHM's photo database.
- 10 Author's translation. In Norwegian: *'Det første min sjef sa var at jeg alltid i mitt arbeid måtte være sann, ikke la fantasien, eller en formodning om slik eller slik må det ha vært, spille inn. Nøkternt og klart skulle jeg tegne det jeg så og dermed basta'* (Krafft 1955, 9).
- 11 Vedeler 2013.
- 12 Vedeler 2013.
- 13 Nockert 2006, 279.
- 14 Jacoby 2004, 201–204.
- 15 Vedeler and Veseth 2008.
- 16 Veseth 2004, 41.
- 17 Mammen: Hald 1950, 109–112; Pskov: Zubkova, Orfinskaya and Mikhailov 2009; Moščeŭaja Balka: Ierusalimskaja 1996.
- 18 Nockert 2006, 304.
- 19 Ciszuk 2011, 4.
- 20 Nockert 2006, 283–294.
- 21 Production quality refers in this case to the number of errors, stability and evenness in the weave. In cases where dyestuff has been traced this is also considered.
- 22 Jacoby 2004, 201–204; Muthesius 1997, 66; Nockert 2006, 282.
- 23 Nockert 2006, 283.
- 24 Nockert 2006, 282–283.
- 25 Ciszuk 2011, 1.
- 26 Fragment A–G, W, 9, 30D, 51, 53, 55, 58, 60 and 74.
- 27 U, V, X, Y, Z, Å, Ä, Ö, 7, 11, 16 and 43.
- 28 Nockert 2006, 283–298.
- 29 Vedeler 2013.
- 30 Sample code KIK 10808/1 (Vanden Berghe 2010, 5).
- 31 Ierusalimskaja 1996, 237.
- 32 For textile finds from Moščeŭaja Balka see Chapter 4.
- 33 An example of this pattern can be seen in Sens Cath, TCB180; Chartraire Inv.1897, No. 42; Von Falke 1913, fig. 166; Muthesius 1997, fig. 72b. In these publications there are also many other examples depicted.
- 34 The textile has been examined by Dr Loredana Boero at the Textiles Department and Laboratory in the Vatican museums in 2010. My deepest thanks to her, and to Dr Guido Cornini, Curator at Decorative Arts Department on Vatican Museums, for their generous and kind assistance.
- 35 Volbach 1942, 37.
- 36 Volbach 1942, 47.
- 37 Photo in KHM archive: saksnr.05_8823_2_645b_c55000.
- 38 Azarpay 1981, 112.
- 39 Marshak 2003, 84, personal comment from Dr Ashk P. Dahlén, Iranian Studies, UIO.
- 40 Sheng 1998, 149–150.
- 41 Depaulis 2003, 87.
- 42 Serjeant 1972, 97. More on Tiraz in Chapter 6.
- 43 Ierusalimskaja 1996, 237.
- 44 Otafsky 1998, 173–184.
- 45 Belenizki 1980, 204.
- 46 Fragment No. 26H in fabric 3; Sample code KIK 10808/03 containing alizarin (Berghe 2010, 5).
- 47 Ciszuk 2011, 3.

48 Nockert 2006, 283; 297–298.
 49 Ciszuk 2011, 5.
 50 Ciszuk 2011, 6.
 51 C55000/377/29, 40, 54, 59, 62, 63, 64, 67, 69, 70, H, I, J (Nockert 2006, 283).
 52 Ciszuk 2011, 9.
 53 Nockert 2006, 292.
 54 Sample code KIK 10808/2: Lawson, ellagic acid, anthragalol, kermesic acid, alizarin, purpurin and an unknown compound characteristic of dyes from the Rubiceae family (Vanden Berghe 2010, 5–6).
 55 Melo 2009, 6–7.
 56 Cardon 2007, 609–619.
 57 The source referred to is *Otia Imperiala*, translated in Cardon 2007, 617.
 58 Moščevojaja Balka in northern Caucasus (Ierusalimskaja 1996) and Pskov in north-west Russia (Zubkoba *et al.* 2009). See Chapter 5 for further discussion on these sites.
 59 For a thorough discussion on Flake's Alexandrian group and the hunter silks see Muthesius 1997, 65–79.
 60 Muthesius 1997, 74.
 61 Ierusalimskaja 1996, 239.
 62 For fabric No. 14: 24–26 × 36–40, fabric No. 15: 18–20 × 34–38 (Nockert 2006, 283).
 63 Nockert 2006, 298.
 64 Shepherd 1981, 105–115. See Chapter 6 for further discussion of Zandanijii textiles.
 65 Sheng 1998, 117–126.
 66 Fragments 3 and S (Nockert 2006, 294).
 67 Ciszuk 2011, 6.
 68 Fragments Nos 24, 61, 68, T, U, 12a2II (Nockert 2006; 283, 294).
 69 Fragments Nos 68 and 12a2II.
 70 Sample code KIK 10808/5, fragment No. 12A2III in fabric 15 containing alizarin, purpurin and an unknown compound characteristic for dyeing with dyes from the *Rubiceae* family (Berghe 2010, 5–6).
 71 Ciszuk 2011, 6.
 72 Museum no. 55000/377 12B1–12B6, 29B, 12L1a + b, 12L2, 12G.
 73 Fragment No. 12L1 (Nockert 2006, 335).
 74 Nockert 2006, 337.
 75 Nockert 2006, 399.
 76 Karlsson 1983, fig. 42.
 77 Nockert 2006, 337.
 78 Nockert 2006, 153–154.
 79 No. C55000/377 34 D 1–2.
 80 Nockert 2006, 153–159.
 81 See for example Hald 1950; Hougen 1933; 1935; Raknes Pedersen 1988; Schlabow 1976.
 82 Gokstad, Birka, Valsgårde, Önsvala, Mammen, Hvilehøj, Hørning Church, Slots Bjergby, Eura Luistari, Tampere Vilusenharju. See Chapter 2 for further discussion on these finds.
 83 Nockert 2006, 150–151.
 84 Grieg 1928, 180.
 85 Nockert 2006, 153.

SILK IN VIKING GRAVES

Silk Sites in Scandinavia

In Central and Western Europe, most of the silk that has survived from the early Middle Ages is to be found among church treasures. Very few pieces have been excavated by archaeologists. In Scandinavia, the picture is different. The few medieval silk treasures preserved in Scandinavian churches date to the 12th century onwards. The largest and best preserved silks from this period come from Odense in Denmark.⁸⁶ However, due to the late adoption of Christianization in Scandinavia, no such church treasures are dated to the 9th and 10th century.

The few preserved silk fragments in Scandinavia from the 9th and 10th centuries so far derive from archaeological contexts. Almost all have been found in graves. A few finds of a slightly later date have been found in settlement contexts, such as a piece of silk tabby found in an excavated house in Lund in Sweden and a strip of samite from Viborg Sønderød in Denmark.⁸⁷

In Scandinavia, 23 archaeological sites with finds of silk dating to the 9th and 10th centuries have been registered; the finds spread among 94 graves in total. They include both woven fabrics of silk and silk thread used in embroideries and braids.

In addition, there are several graves with finds of fibres assumed to be silk but not yet identified. We have to assume that several other Viking graves not yet registered contain small traces of silk, and more sites will be revealed by new archaeological excavations. Many of the sites discovered so far have revealed only one or a few fragments of silk in a single grave. In some sites, such as Valsgårde and Tuna in present Sweden, two or three graves contained silk. The largest concentration of graves containing silk is in Birka where, according to Agnes Geijer, 63 graves contained various remnants.⁸⁸ The largest concentration of silk in a single grave was, however, found in Oseberg, where over 100 fragments of samite silk from different fabrics are preserved, in addition to silk embroideries and tablet woven braids.⁸⁹

Location of Silk Finds

The Viking Age silk sites in Scandinavia are located in the area between the north of present-day Norway south to the north of present-day Germany.⁹⁰

A quick look at the map shows that a large number of the silk finds are located

in the southern and middle part of Scandinavia. Only very few finds of silk have so far come to light in the northernmost areas. The northernmost silk found so far was discovered at Ness in Hamarøy, northern Norway. A large grave mound containing silk was excavated at this site in 2010–2011.⁹¹

Following the Norwegian coast southwards along the old Nordvegr waterway, we find the location of Sandanger c. 800 km further south in the county of Møre og Romsdal. Here lay a woman's grave from the 9th century containing a small fragment of samite silk.⁹² Continuing along the coastline, we find another single item containing silk c. 305 km further south. In the county of Hordaland, a rich woman's grave dating to the 10th century contained small fragments of samite silk, with both z-spun and unspun threads.⁹³ The fragments were on the back of an oval brooch.⁹⁴ The deceased woman, found at Veka in Voss, was buried in a large mound c. 30 m in diameter.⁹⁵

Following the coastline around the southern coast of Norway, we find a small cluster of silk finds on each side of the Oslofjord. Two of these three graves are the best preserved Viking Age boat-graves ever found; Oseberg and Gokstad. The silk finds from Oseberg have been presented already in the previous chapter.

At Gokstad in Vestfold, a large burial mound was excavated in 1880, not far from Oseberg.⁹⁶ It proved to be a rich man's grave; the mound erected around AD 900. The ship and burial mound were richly furnished, with a burial chamber of timber, three small boats, riding equipment, household equipment and a sledge among the grave goods, as well as horses, dogs and even a peacock. Small fragments of textiles were also found in the grave, among these beautiful and rare embroidery in silk and gold and remnants of what might have been a tablet-woven band. Only the weft thread in gold lamellae is left of the presumed tablet weave. Unfortunately, there are no remnants left of the core and the warp threads. Ongoing excavations at Heimdal, some 500 m south of the Gokstad mound, show that a relatively large centre for crafts and trading was located here in the Viking Age. A large number of Kufic coins were found at Heimdal during the excavation seasons of 2012 and 2013, among them dirhams from 10th century Tashkent and from 8th-century Wasit. The latter is known for its early medieval textile and Kermiz production.⁹⁷



Fig. 13. map with silk sites from the Viking Age in Scandinavia. Drawn by Gerd Eng Kielland based on information from the author

The third silk site from the Oslofjord area is from Nedre Haugen in the Østfold County, on the opposite side of the fjord from Oseberg and Gokstad. Here, a wide chamber mound dating to the 10th century was opened and excavated as early as 1864, but unfortunately not by archaeologists.⁹⁸ A well preserved fragment of samite silk was found in the grave. A weighing balance with associated weights was found wrapped in cloth, partly woollen and partly made of silk.⁹⁹ As the

artefacts were turned in to the museum out of context, it is difficult to determine how the silk may relate to the other textiles and to the balance weight. Compared to similar finds, the silk strips might have been used as decoration on clothing.

So far, we have followed the path of silk finds scattered around the coast of present Norway. But apart from a single samite fragment dating to the early 12th century from a treasure find on Öland, only two silk sites are to be found in the southernmost part of modern Sweden. These are located at Lund and Önsvala and will be discussed later as part of a cluster of silk sites in south Scandinavia. Apart from these, the south-eastern coastline, as well as the inland of Sweden, is indeed empty of silk finds up to the Island of Gotland.¹⁰⁰

Presumably the silk found in Viking graves around the Oslofjord came from the east along the great Russian waterways. In addition to the coastal route around southern Sweden, the direct land route going east–west was possibly used for trade and exchange of silk. The shortest route from the Oslofjord area to the eastern gateway in the Mälaren area crosses over land through Värmland. Archaeological sites and artefacts found in the area testify the close relations westwards to the Oslofjord and east to Mälardalen.¹⁰¹

Following the south-eastern coastline, the next silk site is situated at the island of Gotland. Despite of the huge amount of grave material dating to the Viking Age found here, only a single silk find from this period has been discovered. Given the strategic geographical position and the exceptionally rich archaeological material found on the Island this is surprising. A number of objects provide evidence of vivid contacts with the east towards the Great Russian waterways.¹⁰² The only silk site at Gotland is situated at Ihre, on a huge cemetery from the Viking Age. More than 600 graves have been excavated at this site.¹⁰³ In one of the grave cairns was found a female burial with silk.¹⁰⁴ A single fragment of samite silk and a fragment of tablet-woven or Sprang-woven band were found in a female burial among other textiles of various qualities.¹⁰⁵

Birka and the Uppland Area. A Cluster of Silk Finds

If we take a look at the map again, a main cluster of silk sites emerges in eastern Sweden. These finds are located not far from the coast of the Baltic Sea and the Gulf of Bothnia. This is by far the largest concentration of graves containing silk fragments of all sorts, with Birka as the queen of silk sites. Valsgärde, Brista and Tuna are the other silk sites in this area.

Birka, situated on the island of Björkö in Lake Mälaren in southern Sweden was a central trading hub in Scandinavian society in the Viking Age. Birka functioned as an important gateway to the Russian waterways of Dnjepr and Volga. Today, traces of walls surrounding the town and several huge grave fields flanking the town area are still visible in the landscape. The town area (called *svarta jorden*, ‘the black soil’); a garrison area and several large graveyards have been systematically excavated by archaeologists, the earliest taking place as early as in the 1680s.¹⁰⁶

A number of high status chamber graves and mounds on the island have revealed traces of silk.¹⁰⁷ Sixty-three graves excavated in Birka contained either woven silk fabrics or tablet-woven bands with silk threads.¹⁰⁸ Of the 49 graves containing woven silk fabrics, 12 have been dated to the 9th century while the majority stem from the 10th century.¹⁰⁹ The high number of silk finds in Birka compared to other places makes this site highly exceptional.

The majority of textiles found at Birka were published by Agnes Geijer as early as in 1938. However, new methods and technology have been developed since then. New, thorough investigations of the Birka material are therefore needed.

North of Birka, in the areas of Uppland and Västmanland, three more silk sites have been discovered; Valsgärde, Brista and Tuna. In a large graveyard at Valsgärde, old Uppsala, several rich grave finds contained silk. Presumably, even more graves contained fragments of silk, but unfortunately not all finds from this magnificent archaeological site have been published. Several graves, however, revealed remains of silk textiles.¹¹⁰ Silk of tabby weave was found in three graves, while silk of samite weave was found in two. In most fragments the silks were made of unspun yarn in both thread systems. The only exception was a fragment of samite found in grave no. 15. This fragment was z-spun in warp, but bore no traces of spinning in the weft.¹¹¹

The site of Brista is located some 40 km closer to Birka. Small remnants of samite silk come from a grave find excavated as part of a graveyard and dwelling site.¹¹² A highly fragmented piece of samite was found in a female grave dated to the 9th century. Among the other grave goods were oval brooches and an equal-armed brooch as well as several tabby weave fragments in other materials, some of them directly connected to the brooches.¹¹³



*Fig. 14. The town's area 'svarta jorden' and the huge grave field 'Hemlanden' at Björkö in Sweden.
Photo: Marianne Vedeler*

In a grave field at Tuna, Västmanland, fragments of samite silk were found in two rich boat graves excavated in the years 1952–1953.¹¹⁴ One of the graves was a female burial from the second part of the 10th century, richly furnished with oval brooches (P52/55), a needle holder, knives, rings, pearls and tweezers among the grave goods.¹¹⁵

As previously mentioned, most silk sites are located near the coastal waterways of Scandinavia. Vivallen, however, is an inland site in Härjedalen. This Sami

graveyard with a total of 20 graves was excavated at Vivalen in 1913. Remains of human bones in grave no. 9 showed that the grave was made for a man who died in his 50s.¹¹⁶ Around his waist, he had remnants of a belt in oriental style, adorned with 27 mounts of copper alloy. In addition to the belt, the grave goods consisted of a silver brooch, a needle holder, a knife, pearls and a finger ring of silver. Furthermore, several textile fragments of various qualities were found around the area of the chest, waist and pelvis of the deceased, as well as in connection with jewellery and birch bark objects found in the grave.¹¹⁷ Among the textile fragments, Lise Bender Jørgensen registered a tiny fragment of samite silk measuring about 1 × 0.5 cm. The warps were z-spun, the weft had no traces of spinning.¹¹⁸ The samite fragment is not, however, mentioned in a later catalogue of the Vivalen textiles.¹¹⁹

At approximately the same latitude as Vivalen, but on the eastern side of the Gulf of Bothnia, lies the silk site of Tampere Vilusharju in present Finland. A tablet-woven silk band with lamellae threads of silver and gold, with a core of silk, was found in a graveyard that was in use from the 9th to the early 12th century. The tablet-woven band was found in grave no. 8, dated to the Viking Age, and belonged to a man. The brocaded braid is approximately 15 × 7 cm, and is made with 20 tablets. Remnants of a geometrical pattern can be observed. The braid was probably sewn on to a twill fabric, and a brooch was attached to it.¹²⁰

The site of Eura Luistari is situated some 97 km south-west of Tampere Vilusharju towards Birka. This site is the largest prehistoric graveyard in Finland, and was used from the Late Bronze Age to the Middle Ages.¹²¹ Approximately 117 burials from the Viking Age were found on this graveyard. One of the male graves proved to be richly furnished, dating to the first half of the 10th century.¹²² Remnants of silk were found at several places in the grave. There were also fragments of a brocaded braid with silver threads. The silk has been interpreted as remains of clothing with silver braids used as decoration in the neck opening. Weights and silver dirhams associated with eastern trade were also among the grave goods.¹²³

The Southern Cluster

The southernmost cluster of silk sites in Scandinavia is centred on the area of southern Jutland south to Haithabu in Slesvig and east to Lund in Skåne. Ten registered silk sites are located here including one at Zeeland and two at Skåne.¹²⁴ This area has natural geographical connections further south to the inland trade routes through Central Europe, and also to the waterways eastwards on the Baltic Sea. Still, none of the silk sites in this area can match either the large number of graves containing silk found in Birka, or the variety of silk fabrics found at Oseberg. But some of the most impressive and monumental graves from the 10th century in Scandinavia are located here. Bjerringhøj Mammen in Jutland is in this league. In 1868, a rich male chamber grave was opened by local people in Mammen and a large variety of textiles and other objects found – among them was the famous axe with silver decoration which gave the name to the ‘Mammen style’. The grave has since been dated by dendrochronology to AD 970–971.¹²⁵ Silk tabby, samite and tablet-woven silk bands were found in this grave, clearly remnants of high status garments.¹²⁶ These are probably the best preserved remnants of silk-decorated garments from any Scandinavian Viking Age grave.

In the area around Mammen we find the silk sites of Viborg Søndersø, Hvilehøj, Fløjstrup and Hørning Church. All except Fløjstrup are dated to the 10th century.¹²⁷ At Hørning, Fløjstrup and Hvilehøj the silk fragments were found in burial mounds, while the silk at Viborg Søndersø was found in a settlement area. I will return to some of these sites later, as examples of samite silk and tablet weave with silk.

Further south we find a monumental mound from the 10th century, in the well known Viking site of Jelling, Tørrild. The mound, called 'Thyras Høj', was excavated in 1861. The grave chamber is dated by dendrochronology to AD 958–959.¹²⁸ In the mound, some fragments of tabby silk were found inside the grave chamber.

At the Island Zeeland, east of Jutland, we find the only silk site situated in Slots Bjergby near Slagelse. A scrap from a tablet-woven fabric with silk and gold thread was found here, together with remains of human bones of unknown gender.¹²⁹

Two silk sites have been found in southern Skåne, just across the narrow strait of Øresund from Zeeland, one in the city of Lund and the other at the site of Önsvala. Both are dated to the late Viking Age, the silk from Lund possibly dating to the beginning of the 11th century.¹³⁰ To this day, that found at Lund is the only silk item found inside a house in Scandinavia from this period. The two graves containing silk at Önsvala, however, were parts of a rich grave field.¹³¹ A tablet-woven band, with a geometric pattern formed of alternating gold and silver threads, was found in one of the graves. The pattern forms stars and angles. The 1.3 cm wide band is made with 25 tablets. In the other grave, two tablet woven ribbons with silver and silk threads were found. A geometrical pattern could be observed on one of the ribbons. The ribbons are c. 1.6 cm and 0.9 cm wide, the coarsest with 20–22 threads per cm in both warp and weft. Several fragments of silk tabby were attached to the bands in both graves.¹³²

The well-known Viking town Haithabu is situated in Slesvig, Germany, and this is the southernmost of the silk sites included here. A large number of textiles of various qualities have been found at the settlement site and in the graveyard, making the site an interesting example of textile varieties found inside an important Viking Age trading centre. Tabby-woven silk was found in three chamber graves at the graveyard of Haithabu, mostly in the form of sewn strips or bands that were once part of garments.¹³³ Inga Hägg, who has published the Haithabu textiles, registered 12 fragments of such bands. The weave is extremely fine, the measured weave density varying between 44 and 92 threads per cm.¹³⁴ All fragments recorded are z-spun in one direction of the weave and with no traces of spinning in the other.

In addition to the tabby silks, a small fragment interpreted as silk samite has also been found in one of the burials from Haithabu, which was excavated in 1905.¹³⁵ The weave is printed into a mineralized surface on a lump of mixed material of textile, down, leather and wood.¹³⁶ Taking into account the importance of the town of Haithabu, strategically situated between the Baltic Sea, the North Sea areas and the southern markets, it is surprising that so few fragments of silk textiles have been found here.

Geographical Concentration and Trade Routes

To sum up, we find a higher density of silk sites in southern Scandinavia than in

the northern parts. The lack of silk finds in the north is a little strange taking into account the fur trade between the polar areas, the Volga Bulgars and the Islamic world. Fur became fashionable and a standard item of luxury among the elite of the Islamic world after AD 750. The middle Volga region probably became one of the largest suppliers of furs for the Islamic markets in the 9th and 10th centuries. Although much of the supply no doubt came from the middle Volga region itself, several written sources state that a part of the supply came from areas as far north as the White Sea region and from the areas along shores of the Barents Sea.¹³⁷ Norse and Rus merchants as well as Tatar Lapps and Finns took probably part in the fur trade, and fur must have been an essential commodity for the Norse merchants. A transaction between Vikings coming from the north of Norway and local fur traders in the Dvina area is described by Snorre Sturlasson in the saga of Olav the Holy. Snorre noted that:

When they came to Bjarmeland, they went ashore at a marketplace. A market took place there, and all that had goods for sale got a good price. Tore got many fur wares, beaver and Sable; Karle also had much goods with which he bought a lot of fur wares.¹³⁸

Even so, the sparse archaeological material suggests that more eastern silk was distributed to the south of Scandinavia than to the north. It is, however, probable that Norse traders exchanged fur from the north with silk from the east in Bulgar and other market places in this region, bringing the silk back to southern and middle Scandinavia. The lack of silk finds in the north of Scandinavia could be due to preservation conditions, but more likely silk was easier to get hold of near trading hubs in the south, which had connections to the east towards Byzantium and Central Asia. The high number of artefacts with Scandinavian origin found in the area from Ladoga to the Black Sea, together with the artefacts of eastern origin found in southern Scandinavia, indicates that contact between Scandinavia and these eastern areas was frequent during the Viking Age.¹³⁹ The large number of dirhams and dirham imitations found in Scandinavian trading centres and in excavated hoards bear further testimony of contact and trade between southern Scandinavia and the growing Islamic realms by way of the great Russian river systems.¹⁴⁰

In addition to the eastern trade routes, silk was probably brought to Scandinavia through Central Europe. More than 1000 silk fragments dating to the early medieval period have been registered in Western Europe.¹⁴¹ It is likely that silk was carried along with other commodities through Italy across the Alps to Switzerland, northwards through France, the Netherlands and into Germany.¹⁴²

Increasing Trade

The silk finds of Scandinavia are too few to constitute a substantial statistical database. But, as in most situations confronting archaeological material, we have to settle with what we have got. Seen as a whole, the majority of silk-containing graves from the Viking Age found in Scandinavia date to the 10th century.¹⁴³ This is the case for imported woven silk fabrics as well as locally made tablet weaves containing imported silk thread. Considering the 23 sites in question, silk has been found in 53 graves dated to the 10th century and 19 dated to the 9th. Twenty-two graves have been dated to the Viking Age without any further specification.

The bias of 10th century graves is especially visible in the southern and eastern silk clusters. In the southernmost part of Scandinavia, Bjerringhøj Mammen, Viborg Søndersø, Hvilehøj, Jelling and Lund were built in the 10th century. The only grave in this area dated to the 9th century is Fløjstrup. The same pattern is visible in the eastern cluster. Forty graves at Birka have been dated to the 10th century, while only 14 of the graves containing silk are considered to be older.

As we have seen, silks of both higher and lower quality were probably considered very precious at Oseberg in the 9th century. Even low quality and worn out fabrics were used again, sewn onto a garment with the wrong side facing out.¹⁴⁴ The growing number of silk finds from the 10th century could mean that the flow of silk to Scandinavia was increasing.¹⁴⁵ This chronological picture corresponds well with other archaeological finds and written evidence, suggesting that the 10th century was the most active period of Rus presence in the east.¹⁴⁶ Consequently, the precious silk may have been slightly more accessible during this century, spreading as far north as Ness in Nordland, in northern Norway. But the rich burial interior in the graves containing silk clearly show that silk products continued to be high status markers in Scandinavia throughout the Viking Age.

Silk, Social Status and Gender

There is no reason to believe that silk functioned as a marker of ethnic belonging in Scandinavia in the Viking Age. Silk fragments have been found in Sami as well as in Norse graves. But there can be no doubt that silk textiles functioned as a marker of high economic and cultural status throughout the Viking Age. Graves which contain silk nearly always include other precious objects as well, such as precious metal objects, jewellery or fine weapons. In addition, a substantial number of these burials were marked by monumental mounds. Silk textiles thus seem to have been reserved for the elite.

A closer look at the goods found in these graves reveals some differences between male and female burials. Silk has been found in both male and female graves, but more women than men were equipped with silk on their final journey. The majority of silk containing graves interpreted as female burials dominate in both the 9th and the 10th centuries.¹⁴⁷

In an archaeological context, the interpretation of gender is most often based on artefacts found in the graves. The obvious reason is that skeletal remains are often inadequate due to poor preservation conditions. The small number of preserved skeletons makes it difficult to compare the grave goods and the physical body at a general level, and thereby to interpret the use of objects as gender markers. However, various researchers publishing Scandinavian grave finds have addressed the question of gender. In this survey I have chosen to rely on their interpretation without going deeper into the discussion of how artefacts were used as gender markers in the Viking Age.¹⁴⁸ A closer look at the different groups of silk reveals interesting patterns. When regarding woven silk fabrics of samite and tabby, female burials are clearly dominant. Samite silk seems to have been most popular for adorning female burial dress. In total, 68 of the burials in this survey contained fragments of samite silk.¹⁴⁹ Among these, 54 are registered as female burials, 11 as male burials and in seven burials the gender is unknown. The same is true for tabby fabrics. So far, only a single male burial has contained tabby silk.¹⁵⁰

In other groups, such as silk embroideries and tablet-woven bands with silk, the gender distribution is more balanced. In the case of embroideries, three male and two female burials were equipped with this type of silk. Graves with tablet-woven bands containing silk are also relatively equally represented; 16 male and 15 female burials bore remnants of such bands.¹⁵¹

The general view of the Scandinavian finds show, nevertheless, that the majority of graves with silk included in the grave goods are female. The advanced and complex weaving technology of the samite silk fabrics dominates in these finds. The reason for this is not easy to grasp, and an interpretation can only be purely speculative. It is tempting to see these gender differences in the light of the story of Ibn Fadlan, meeting companies of Rus on his journey to Bulghar in the 10th century.¹⁵² He saw the Rus women as literally wandering bank boxes, carrying their family fortune on them in the form of jewellery.

Each of the women has fastened upon the two breasts a brooch of iron, silver, copper or gold, in weight and value according to the wealth of her husband. (...). The man, if he possesses ten thousand dirhams, has a neck ring made for his wife. If he has twenty thousand in his possession, then he has two neck rings made for her. And so his wife receives another neck ring with the addition of each ten thousand dirhams.¹⁵³

If the story of Ibn Fadlan reflects the customs of Rus in the middle Volga region it does not necessarily reflect Scandinavian practices. What Ibn Fadlan saw may reflect a hybridity and mix of Scandinavian, Khazar, Slavic and possibly other cultural elements in the region.¹⁵⁴ But the view of married women as keepers of family wealth fits in with both Scandinavian written sources from the 13th century and archaeological material from the Viking Age. An example is keys used as female dress-accessories and the role of keys as symbols of marriage in Saga literature. The keys to store houses and chests that contained family wealth were probably worn by Scandinavian women as a symbol of their status as married women, but were at the same time a practical way of keeping the goods safe.¹⁵⁵ Eastern silk may not have been a symbol of marriage, but it is reasonable to suggest that the silk adornment functioned both as symbol of wealth and as a practical way to store family values.

Silk Varieties in Scandinavia

The Scandinavian silk finds can be divided into three different categories. The largest group is the woven silk fabrics made in either samite or tabby. The second group is tablet-woven fabrics which also contain silk thread. The third group includes embroideries made with silk yarn and/or lamellae, which is a spun metal thread with a core of silk.¹⁵⁶

Samite Silk

Samite silk is the most frequently found type of silk in Scandinavian Viking Age locations. A total of 67 graves, divided between 15 sites spread all over Scandinavia contained finds of samite silk.¹⁵⁷ The majority of these are female graves. Samite totally dominates in the 9th century. All except two silk-containing graves dated to this century revealed fragments of samite. Moving into the 10th century, samite still dominates the picture. Currently 42 of a total of 53 graves

dated to this century contained samite.

The widest variety of different samite fabrics in Scandinavia has been found at Birka, where they have been classified and grouped into three different types. The samite fabric type that Geijer called S4 dominates and is represented in all graves containing samite silk.¹⁵⁸ This has z-spun main warps and weft with no traces of spinning. Unlike the Oseberg silk fragments, it has a double main warp. The S4 group contains several different degrees of coarseness in the weave. When analyzing these, Geijer noticed that some fragments seemed mono-coloured while a few bore traces of a pattern.¹⁵⁹ This could very well be caused by differences in preservation conditions, as seen in the Oseberg silks. Dyes used on textile fibres easily fade in the ground.¹⁶⁰ In contrast to Oseberg, all except one of the samite fragments from Birka has a double inner warp. This has a more uneven woven quality, separated by Geijer into a type she called S5 and, like the Oseberg silks, it has a single inner warp.¹⁶¹

Traces of pattern are sparse among the S4 samite silks from Birka, and Geijer found it difficult to trace their provenience. They could be either Persian or Byzantine in origin, but Geijer found it most likely that they are Byzantine.¹⁶²

In one of the richest graves ever excavated in Birka, a male burial from the 10th century, a very special find appeared. This is a fabric of two-colored silk damask, with a pattern of stars and dots. Geijer called this fabric S3.¹⁶³ The threads of raw silk bear no traces of spinning in either warp or weft. This silk, the only one of its kind so far found in Scandinavia, was probably produced in China. Geijer compared these fragments with Han silks from Lou-Lan and Eastern Turkestan.¹⁶⁴

The remaining sites where samite silk has been found in Scandinavia all have their own story, with a variety of samite silks combined with other fabrics and materials. Not all will not be described in detail, but we will have a brief look at a few interesting examples.



Fig. 15. Oval brooches from Birka, Bj 517, Björkö north of Borg. © Photo: Eva Vedin, Statens Historiska Museum, Stockholm

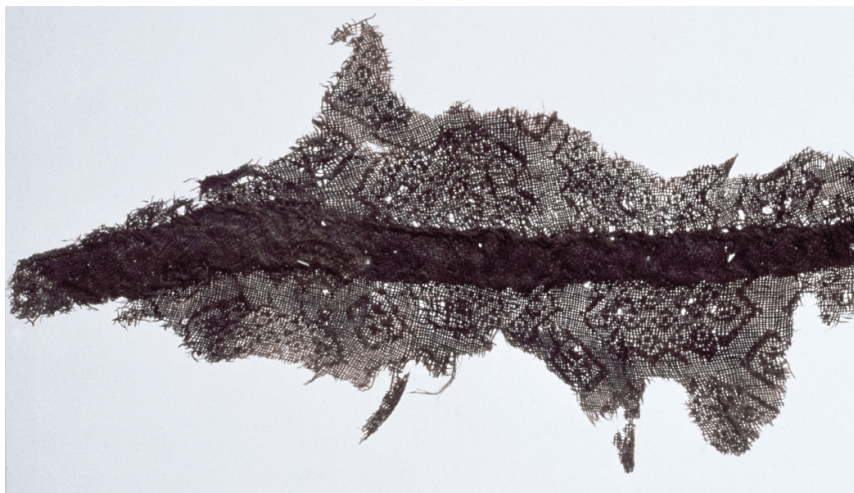


Fig. 16. Two-coloured silk damask from grave 944, Birka. © Photo: Statens Historiska Museum, Stockholm

In grave no. 12 excavated at Valsgärde there were two fragments of silk samite weave; measuring c. 9×4.2 cm.¹⁶⁵ The fabric is very thin, with as much as 60 threads per cm in one measurable thread system. In addition, the fragments interpreted as parts of clothing are embroidered with a costly silver-wrapped silk thread. There were no traces of spinning in neither warp nor weft. Twelve cast bronze buttons were also part of the grave goods. The grave is dated to the 10th century.

Another 10th century grave at Valsgärde-grave also revealed samite silk (grave no. 15/5915). This is a large fragment of 51×6 cm. As in grave 12, there were no traces of spinning in either warp or weft. Lise Bender Jørgensen counted 44 threads per cm in one measurable thread system.¹⁶⁶

As with all the samite silks found at Oseberg, samite fragments found at Tuna in Västmanland were woven with a single main warp. Three small fragments of samite with single z-spun warp and unspun weft were found in a grave dated to the late 10th century.¹⁶⁷ Another boat grave in Tuna also revealed silk. This grave is especially interesting because the eastern silk was found together with some special jewellery. Among the grave goods there were several pendants made of Arabic coins minted in Wasit in the years AD 731/32 and 742/43.¹⁶⁸ Wasit, situated south of Baghdad, was renowned for its Kirmiz-dyed textile products.¹⁶⁹ In this female grave dated to the 9th century (no. 75), there were several fragments of folded samite strips of approximately 3 cm with the longest c. 7 cm. When analyzed they were golden brown, the original colours having faded. Originally, the weft had at least two alternating series, usually differing in colour. As in grave 48, the weave had a single main warp. Both warps and weft measure 22 threads per cm.¹⁷⁰



Fig. 17. Pendant made from a dirhem from Wasit, grave no. 75, Tuna Badelunda. Inv. No. 27875, © Västmanlands läns museum, Photo: Susanne Granlund

The samite fabric found at Viborg Sønderød is different, made with two z-spun main warps. The fabric bears no traces of spinning in the weft. The density in the warp is very high, 72 threads per cm.¹⁷¹ The samite strip is c. 35 cm long and hemmed along the edges. Traces of a pattern in red and presumably undyed silk were observed during cataloguing. Needle holes show where the silk was sewn onto another fabric. The width varies between 0.3 and 2 cm. The silk is presumed to be from the late 10th century.¹⁷²

Occasionally, reasonably well preserved patterns can still be observed on silk fragments. At Mammen, two fragments of samite silk showed traces of a pattern of red and yellow hearts on a red background.¹⁷³ The samite is z-spun in one direction and unspun in the other (no. C140). One of these fragments is formed as

a silk strip with traces of sewing thread along the hems. The Lichen purple dye has been detected in the sewing thread from this piece. The dyestuff could indicate that this silk was made in the Mediterranean area or in the Middle East region. The red weft of the samite has probably been dyed with madder, while the yellow weft and one warp bore traces of an unidentified red mordant dye.¹⁷⁴

Woven Samite Strips and Clothing

In cases where the provenience of the fabrics has been addressed, the majority of the woven silk fabrics have been interpreted as being either Central Asian in origin or from the Middle East, the Byzantine production area (Constantinople) or in associated areas in the eastern Mediterranean region.¹⁷⁵ A few silk fragments from Birka, however, have been interpreted as Chinese.¹⁷⁶ Further investigation has to be done on the Birka material to draw further conclusions about the area of origin of each fabric found there.

In cases where the samite silk is relatively well preserved, it is often shaped and cut into long, rectangular strips folded along the edges. Such stripes have been found in sites like Oseberg, Haugen, Tuna, Birka and Hvidehøj. In several cases, traces of needle holes in lines along the edge indicate that the strips have been hemmed and sewn onto other fabrics. The samite fragment found at Nedre Haugen is an example of this. It has a rectangular form, c. 10 × 2.5 cm. Needle holes and visible traces of folding along three edges show that the fragment was probably once used as trimming. Folded and sewn, the strip must have been about 1.3 cm wide. The weave is made in s-diagonal form and has a double z-spun main warp and unspun weft in at least two colours.¹⁷⁷ Today, the pattern has faded and is very difficult to interpret. Both cut and seams indicate that strips of samite silk were used as trimming and adornment on clothing.

Many of the female graves where silk was found also included oval brooches. This is the case with eight Scandinavian sites, which included both 9th- and 10th-century graves.¹⁷⁸ It is worth noting that fragments of oriental silk in Scandinavia have often been found in graves associated with this typical Nordic dress adornment. In some cases, samite silk has been found on the back side of oval brooches, indicating that the silk was part of the suspended dress near the chest area. We find an example of this in a grave from Veka in Voss.¹⁷⁹ Another example is Tuna in Badelunda, where fragments of samite silk were found in association with two oval brooches of JP 37 type.¹⁸⁰ At the Sandanger site, even remnants of a suspended dress in the form of loops of wool were found in connection with the Oval brooches and a small fragment of samite.¹⁸¹

Not only samite, but also tabby cloth has been found in context with oval brooches. This is the case for a grave excavated at Haithabu in Slesvig, where fragments of tabby were found at the back of an oval brooch on the right side of the deceased's chest.¹⁸²

On the other hand, silk strips have also been found in graves without oval brooches, and in both male and female burials. Silk trimming was, consequently, probably used on several different kinds of dress for both men and women. Inga Hägg argues that silk bands or trimming were probably used on both caftans and tunics, and as head adornment.¹⁸³ Nevertheless, the large number of samite silk found in female graves compared to male, does indicate that silk strips was a specially preferred adornment for women's dress during the Viking Age.

Silk Fabrics of Tabby Weave

Tabby has been found at seven sites within the southern and eastern clusters.¹⁸⁴ A total of 12 graves included tabby finds.

An interesting piece of tabby fabric found at Lund in Skåne is formed as a band made of red silk tabby, but with three silk tabby stripes sewn on to it as decoration. This could possibly be an example of a decorative element that could be re-used when needed, if for example the original garment got worn out. These stripes, now faded yellow to grey, are appliquéd on to the main fabric with yellow silk thread. The main piece bears traces of needle holes showing that the whole decorated fabric was once sewn on to something else, presumably a garment. The fragment measures c. 13×5 cm.¹⁸⁵

Tabby fabrics have also been found in combination with tablet weave. This is the case for a find from Önsvala, not far from Lund. Here, two types of tabby weave were found attached to tablet-woven bands in two graves. In one case, tiny fragments of silk tabby without spinning were found attached to a tablet woven band, the largest fragment measuring c. 0.8×0.8 cm.¹⁸⁶ In another grave, a finer tabby attached to a tablet woven band with geometrical pattern measured $36/34$ threads per cm and was z-spun in both warp and weft.¹⁸⁷

A small fragment of tabby silk found at Jelling in Jutland measures c. $10 \times 3.5-4$ cm.¹⁸⁸ In this fragment, one of the thread systems is much denser than the other, measuring 37–45 z-spun threads in the warp and 20 threads per cm with no traces of spinning in the weft.¹⁸⁹ The form of the fragment is irregular and all edges are frayed and fragmented. The colour is surprisingly well preserved, showing a bright red that turned out to be purplish lichen when analyzed.¹⁹⁰ The dyestuff could be from the Mediterranean area.



*Fig. 18. Oval brooch with remnants of textiles, grave no. 75, Tuna Badelunda. Inv. No. 27901
©Västmanlands läns museum, Photo: Susanne Granlund*

At Mammen, tabby fabrics of silk have been used in combination with several

other materials. Two extraordinary bands were found. At both bands, a central decoration made of needle bonding with loops of gold and silver threads is flanked by tabby silk, z-spun in both directions. The ends were apparently further decorated with a pendant in gold plate (no. C137).¹⁹¹ The decorative bands have buttonhole stitches in silk thread along the edges. The silk tabby had been dyed with lichen purple in both warp and weft. Penelope Walton, who analyzed the dyestuff used in Mammen, argues that the lichens most likely derive from the Middle East or Mediterranean region.¹⁹²

In conclusion, the preserved examples of tabby-woven silk preserved in Scandinavia show that such silks have been used as decorative elements on clothing, both alone and in combination with tablet-woven bands and with metal-work. Strips of tabby silk were presumably used in the same way as the decorative strips made of samite. In addition to trimming, fragments found outside Scandinavia suggest that tabby silk fabrics also were used to make small garments, like headwear. Finds from Viking Age Dublin and Lincoln show that tabby-woven fabrics were probably used as caps and scarves.¹⁹³

Embroideries

Embroidery is the rarest form of silk found in Scandinavia. Only five sites contained embroideries, at Gokstad, Oseberg, Birka, Hvilehøj and Valsgårde. The preserved embroideries are either made with silk thread or metal-wrapped thread with a core of silk, or a combination of the two. The few remnants of embroideries dating to the Viking Age are, in most cases, poorly preserved, leaving only traces of thread combined with metal. This is the case for the site of Hvilehøj in Randers. The cremated body of a woman was buried with a pearl necklace and, as part of this, a silver coin minted in Cologne in AD 936–962.¹⁹⁴ A lump of wool and silk textiles was also found in the mound. Among the textiles were tablet-woven bands and fragments of samite silk strips. These strips were probably embroidered with silver thread.¹⁹⁵



Fig. 19. Decorated bands from Mammen, No. C137. Photo: Roberto Fortune and Kira Ursem © Nationalmuseet København

The preserved embroidery from Gokstad is exceptional, having no equivalents in other Scandinavian graves. It is small, measuring c. 2.8×3 cm. The motif has an organic form, a kind of flower with circular layers with smaller flowers inside the main frame.¹⁹⁶ Combinations of stem-stitch and simple laid-work have been used to form the pattern, with the use of s-spun silk thread in at least two different colours as well as gold-wrapped silk thread.¹⁹⁷

The information about the micro-context in which the embroidery was found is sparse and confusing. In a description from 1882, a fabric of silk woven with threads of gold was found inside the hollow roof beam in the grave chamber. When the excavators lifted out the roof beam it was split down the middle,

revealing “a long piece of textile stuff (silk?), interwoven with fine gold-thread”.¹⁹⁸ This description fits on the tablet-woven band found at Gokstad, and is the only description of gold in the finds catalogue. Presumably, the embroidery was found at the same place. We can only speculate in why the precious textiles were placed inside a hollow roof beam.

Considering the relatively large number of graves containing silk in Birka, remnants of embroideries with silk are relatively rare. Remnants of spun metal thread that once had a textile core, presumably of silk, have been found in two graves in Birka.¹⁹⁹ These are considered to be remnants of embroideries made in laid-work. Both these and similar embroideries found at Valsgärde are considered to be imported to Scandinavia.²⁰⁰

Several of the silks in the Valsgärde graves have been embroidered with silver-wrapped silk thread. Traces of brocading in wool and gold have also been found.²⁰¹ In grave 15, a piece depicted as either a collar or cloak trimming has been embroidered with silver in a beautiful pattern of foliate derivation.²⁰² Margareta Nockert noted in her Oseberg publication that the graves no. 12 and 15 from Valsgärde contained fragments of silk fabrics with gold embroidery made in laid-work.²⁰³ The textiles from Valsgärde await profound technical analysis and publication.

Tablet Weave

Tablet woven bands seem to have served several purposes during the Viking Age, and such bands have probably been used by both men and women. Tablet weave including silk has been found in 37 graves at 12 of the silk sites.²⁰⁴ In some graves, such bands have probably been used as a headdress. The burial mound excavated at Ness in 2011 was made for a man who died at the age of 50–60 years. This high status boat grave, dated to the 10th century, revealed a small fragment of silk and silver lamella band attached to the back end of the human skull. The fragment measures c. 4 × 1.5 cm, and could be the remnants of a headdress.²⁰⁵ Traces of a geometric pattern are still visible on the band. The weft is relatively well preserved, while only small fragments of the warp remain. The metal-wrapped silk core has no traces of spinning, while the silver thread is s-spun around the core.

In other cases, the tablet woven bands have been used as part of main clothing, probably as decorative bands sewn onto different types of garments. One of the best preserved examples is found among the textiles found at Bjerringhøj Mammen in Jutland. Parts of two sleeves forming rounded wrist-bands have been found. These are made of silk tabby and tablet weave and have been padded with wool, resulting in a catchy piece of garment. The silk strips and band are sewn together as sleeve decorations one above the other, measuring c. 23 × 3 cm.²⁰⁶

Tablet-woven bands with silk were also used as decorative borders on interior textiles, like the ones sewn onto tapestries found in the Oseberg grave chamber. There is great variation in how such bands were produced, with respect to the number of tablets in the weave, and the choice of patterns and materials. In cases where the precious silk has been used in the weave, it is often found in combination with other materials. In several cases, as in Oseberg, these factors vary greatly even within a single grave.²⁰⁷ Another example found in a grave excavated in Hørning Church, presumably from a former mound, which contained remnants of five different tablet woven bands still preserved. The grave is dated to

the end of the 10th century. The bands were made in tablet weave with threads of silver and silk. In one of these bands (band iv) a major part was made in silk threads that partly covered the silver threads. The band is approximately 5 cm wide.²⁰⁸ Why the weaver wanted to cover the precious silver remains a mystery.

In some of the well preserved tablet-woven bands, traces of pattern are still visible. Geometrical figures are relatively common. Good examples can be found in Oseberg as well as in Birka. Thirteen female burials, 14 male burials and one child burial excavated at Birka contained fragments of tablet-woven bands.²⁰⁹ Most of these had a main warp made partly or totally of silk thread.²¹⁰ The geometrical patterns found on many of the Scandinavian bands point to a presumably Nordic origin. Tablet-woven bands with geometrical patterns have been found in early Iron Age graves, and the tradition continues in Scandinavia into the middle Ages.²¹¹



Fig. 20. Fragments of tablet weave and embroidery with silk and gold lamellae thread from Gokstad, Norway (C10459). ©Photo: Ellen Holte, Museum of Cultural History, UIO



Fig. 21. Mammen wrist-bands. Photo: Roberto Fortune and Kira Ursem © Nationalmuseet København

9th Century			10th Century			Viking Age (without specification)				
Woman	Man	Woman and Man	Woman	Man	Woman and Man	Unknown Gender	Woman	Man	Woman and Man	Unknown Gender
S, 464 Birka	E?, 514 Birka	S, 854 Birka	S, 60A Birka	T + S, 524 Birka	S, 517 Birka	S, Haugen	S, TA, 535 Birka	T, 855 Birka	S, 834 Birka	T, 569 Birka (child)
T, 551 Birka	S, 624 Birka		S, 465A Birka	T, 561 Birka	T + S, 524 Birka	TA, Lund	S, T?, 133 St Ihre	T, 903? Birka	T, 861	TA, 3 Valsgårde
S, 557 Birka	S, 1151 Birka		S, 466 Birka	S, 581 Birka	S, 703 Birka	S + E, 12 Valsgårde	T + TA, 24 Önsvala	S, 944 Birka		S + TA, 10 Valsgårde
S, 577 Birka			S, 480 Birka	T, 643 Birka	T + S + TA, 731 Birka	S + TA + E, 15 Valsgårde	TA, 5 Hedeby	S, 957 Birka		S, 9 Vivalen
S, 597 Birka			S, 507 Birka	T, 977 Birka	T + S, 735 Birka	TA, Jelling	TA, 5 Hedeby	T, 962 Birka		T, 26 Önsvala
S, 619 Birka			S, 511 Birka	T, 1076 Birka	T, 750 Birka	S, Viborg Sønderø	TA, 159 Hedeby	T, Tampere		T, Horning church
S, 620 Birka			S, 518 Birka	T + E, Gokstad			S, 33–37 Hedeby			T, Slots Bjergby
T + S + E, 825 Birka			S, 523 Birka	T, Ness						TA, 1/163 Hedeby
S, 849 Birka			S, 543 Birka	T + S + TA, Mammen						
T + S, 950 Birka			T, 571? Birka	T, 348 Eura L.						
T + S + E, Oseberg			S, 594 Birka							
S, Sandanger			S + TA, 660 Birka							
S, Brista			S, 739 Birka							
S, 75 Tuna			T + S, 791 Birka							
S, C9260 Fløjstrup			T + S, 823 Birka							
			T + S + TA, 824 Birka							
			S, 835 Birka							
			S, 837 Birka							
			T + S, 844 Birka							
			T + S, 845 Birka							
			S, 856 Birka							
			T + S, 943 Birka							
			S, 946 Birka							
			S, 963 Birka							
			T + S, 965 Birka							
			S, 967 Birka							
			S, 983 Birka							
			S, 1934 exc., Birka							
			S, Veka							
			S, Tuna							
			T + S + E? Hvilehøj							

Fig. 22. Table of silk sites in Scandinavia

- 86 Hedeager Krag 2010.
87 Blomquist and Mårtensson 1963, 220–221; Petersen 1998, 267.
88 Geijer 1938, 176–179.
89 See Chapter 1.
90 In Norway: Oseberg, Voss, Sandanger, Haugen, Gokstad. In Sweden: Önsvala, Vivalen, Brista, Lund, Valsgårde, Tuna, Birka and St. Ihre in Gotland. In Denmark: Fløjstrup, Hörning, Hvidehøj, Mammen, Jelling, Slots Bjergby and Viborg Sønderø. In Finland: Eura and Tampere.
91 Arntzen 2011, 33–42.
92 BM, B10720j. Fett 1953, 24; Holm Olsen 1976, 197; Bender Jørgensen 1986, 267–268.
93 In Bergen Museum, University of Bergen, Museum number B 6228g.
94 Bender Jørgensen 1986, 264. Oval brooch of Rygh type 652 made of bronze with traces of gilding.
95 Schetelig 1909, 24–26.
96 KHM, C10466.
97 The results from this excavation is not yet published, see <http://www.khm.uio.no/english/research/projects/gokstad/>. About coins: personal comment from Houshang Khazaei, Serjeant 1972, 36. See Chapter 3 for more information about Kermes/Kermiz.
98 KHM, C 4191b.

- 99 KHM database, catalogue. Nockert 2006, 295.
- 100 For details about the silk find from Öland see Jonsson 1987, 29, Bender Jørgensen 1986, 241–242, Stenberger 1933, 78. Both narrow samite strips and fragments of more rectangular shape are represented at Runsbjerga, Öland. The fabric is z-spun in one direction and bears no traces of spinning in the other.
- 101 Schedin 2000, 106, 126, 208–209.
- 102 Thunmark-Nylén 2006 Vol. II–2, 653–654. An illustration of the rich and varied Viking Age material found on Gotland is to be found in Thunmark-Nylén 1995–2006.
- 103 Steinberger 1962, 4.
- 104 SHM, 23140: 230A, grave 133.
- 105 Bender Jørgensen 1986, 237, Stenberger 1962, 128.
- 106 Stolpe 1874, 1.
- 107 Museum No. SHM 34000.
- 108 All calculations on the Birka finds are made on the basis of Agnes Geijer's tables in *Birka III, die textildfunde* from 1938, 176–179.
- 109 Geijer 1938, 176–179. Twenty-nine graves dated to the 10th century, three graves have been dated to the Viking Age in general. Some of the graves revealed double burials with both men and women.
- 110 Graves number 3, 10–12 and 15.
- 111 Bender Jørgensen 1992, 160–161.
- 112 SHM 26042: 46/1040, Bender Jørgensen 1986, 241; SHM database
- 113 The samite fragment bore no traces of spinning in neither warp nor weft, and the thread count was c. 50 threads per cm in one countable direction (Bender Jørgensen 1986, 241; SHM database).
- 114 Västmanland Läns museum 27650–27653.
- 115 Schönbäck 1994: P.108–111.
- 116 Hallström 1944; Zachrisson 1997, 57; SHM 15052, 9, grave 9.
- 117 Hallström 1944, 325–335.
- 118 Bender Jørgensen 1986, 239.
- 119 Nockert 1997, 235.
- 120 Tomanterä, 17.
- 121 Lehtosalo-Hilander 1982.
- 122 Grave No. 348. Lehtosalo-Hilander 1982, 13, 237–240.
- 123 Lehtosalo-Hilander 2000, 13.
- 124 Hvilehøj, Viborg Søndersø, Bjerringhøj Mammen, Fløjstrup, Hørning Church, Jelling, Slots Bjergby, Lund, Önsvala, Haithabu.
- 125 Andersen 1991, 43–44.
- 126 NM C135–140. Walton 1991, 140; Østergård 1991, 134–135; Brøndstedt 1936, 106; Hald 1950, 107–116.
- 127 Viborg Søndersø (late 10th century) Krongaard Kristensen 1998, 26–27; Hedeager Krag 2010, 64; Hvilehøj (coin minted in Cologne AD 936–962 found in the same grave) Pedersen 2006, 349; Hørning Church (late 10th century) Hedeager Krag and Ræder Knudsen 1999, 161–164; Fløjstrup (9th century) Hald 1950, 119.
- 128 Krogh 1993, 214–216.
- 129 Hedeager Krag 1998:126.
- 130 Lund museumnumber KM 53436:517, Blomquist and Mårtensson 1963, 220–221; Önsvala Grave 24 and 26. Larsson 1982, 146–149, 155–167.
- 131 Grave 24 and 26. Larsson 1982, 146–149, 155–167.
- 132 Nockert 1982, 204–206.
- 133 Grave 5/1964, 159/1960, 1/1963.
- 134 Ten fragments from grave K 5/1964, 1 from K 159/1960 and 1 from K 1/1963 (Hägg 1991, 208).
- 135 Grave 33–37/1905 (Hägg 1991).
- 136 Hägg 1991, 120, 122–125.
- 137 Kovalev 2001, 25–28.
- 138 Kovalev 2001, 29; Snorre Sturlasson 1979, 345.
- 139 Hraundal 2013, 129–163.

140 See Chapter 4.

141 Muthesius 1990, 126.

142 Muthesius 1995, 139. You will find a more detailed discussion of silk exchange and trade routes in Chapters 4 and 5.

143 See Fig. 22.

144 See Chapter 1 for details.

145 Growing opportunities for silk import from the Byzantine Empire in the 10th century will be discussed in Chapter 7.

146 Hraundal 2013, 188.

147 Silk has been found in 94 graves in total. Of these, 52 are interpreted as female graves while 19 are male. Nine graves contained both a man and a woman, and in 14 cases the silk were found in graves where the gender of the deceased is unknown, or in another context.

148 For a discussion on gender and the human body as products of social and historical practices see, for example, Faucault 1999; Gatens 1999.

149 Oseberg, Veka, Sandanger, Nedre Haugen, Vivallen, Brista, Valsgårde (4), Tuna (2), St Ihre, Runsbjerga, Birka (49), Fløjstrup, Hvilehøj, Mammen, Haithabu.

150 Nine female burials and one male burial had silk tabby. In five cases, we do not know if the deceased was a man or a woman.

151 In addition four burials where the gender of the deceased was unknown had tablet-woven bands. See Fig. 22.

152 Read more about Ibn Fadlan in Chapter 5.

153 Frye 2005, 63.

154 Hraundal 2013, 122–128.

155 Aannestad 2004; Arwill-Norbladh 1991, Roesdal 1994, 52; Solberg 2000, 155.

156 An introduction to these techniques is provided in Chapter 3.

157 Samite silk has so far been found at Birka (Geijer 1938, 176–179), Oseberg (Nockert 2006, 283–294), Sandanger (Bender Jørgensen 1986, 268), Brista (Bender Jørgensen 1986, 241, SHM database), Tuna (Nockert 1994, 114), Fløjstrup (Hald 1950, 100; Bender Jørgensen 1986, 221), Veka (Bender Jørgensen 1986, 264), Hvilehøj ((Hedeager Krag and Ræder Knudsen 1995, 161–164), Mammen (Østergård 1991, 134–135), Haugen (Nockert 2006, 295), Valsgårde (Bender Jørgensen 1992, 160–161), Viborg Sønderød (Petersen 1998, 267), Haithabu (Hägg 1991, 120–125), Vivallen (Bender Jørgensen 1986, 239), St. Ihre (Bender Jørgensen 1986, 237).

158 Geijer 1938, 176–179.

159 Geijer 1938, 58.

160 Needels *et. al.* 1986.

161 Found in one single grave dated to the 10th century, no. 944, together with fragments of S3, S4, bands, possament and embroidery (Geijer 1938, 59, 178).

162 Geijer 1938, 65.

163 Geijer 1938, found in grave no. Bj 944.

164 Geijer 1938, 60–62, 66; 1951, 34.

165 Grave nos 12/918 and 12/973.

166 Bender Jørgensen 1992, 160–161.

167 Nockert 1994, 114.

168 Schönback 1994, 112–126.

169 Serjeant 1972, 36.

170 Nockert 1994, 114.

171 Petersen 1998, 267; No. 881D142/BBR/I.

172 Krongaard Kristensen 1998, 26–27; Hedeager Krag 2010, 64.

173 Østergård 1991, 134–135.

174 Walton 1991, 140. See Chapter 3 for more information on dyes.

175 Nockert 2006, 298; Geijer 1952, 17; 1972, 261; Walton 1991, 140.

176 Geijer 1938, 59, 66.

177 Nockert 2006, 295.

178 At Haithabu, Fløjstrup, Önsvala, Birka, Brista, Tuna, Veka and Sandanger.

179 Bender Jørgensen 1986, 264.

180 Grave no. 75. Nockert 1994, 114.

- 181 Fett 1953; Holm Olsen 1976, 197. The samite fragment is 2.5×1 cm with double z-spun main warp and unspun weft. The quality is fine, with c. 46/52 threads per cm. (Bender Jørgensen 1986, 267–268).
- 182 Grave no. 159/1960, Hägg 1991, 131–136.
- 183 Hägg 1983, 209.
- 184 At Valsgärde (Bender Jørgensen 1992, 160–161), Birka (Geijer 1938, 176–179), Lund (Blomquist and Mårtensson 1963, 220–221), Önsvala (Nockert 1982, 204–206), Mammen (Hald 1950, 109–112), Jelling (Hald 1951, 120; Krogh and Leth-Larsen 2007, 129) and Haithabu (Hägg 1991, 208).
- 185 Blomquist and Mårtensson 1963, 220–221.
- 186 The threadcount for this fabric is 28/28 threads per cm (Nockert 1982, 204–206).
- 187 Nockert 1982, 204–206.
- 188 NM C20000.
- 189 There is a divergence in the thread count of the warp made by Hald who counted 45 threads per cm in the warp in 1950 and Krogh/Leth-Larsen who counted 37 threads in the warp in 2007 (Hald 1951, 120; Krogh and Leth-Larsen 2007, 129).
- 190 Lecanora or Rocella, Krogh and Leth-Larsen 2007, 129.
- 191 Brøndstedt 1936, 106; Hald 1950, 107–116.
- 192 Walton 1991, 140–143.
- 193 Dublin: Pritchard 1988, 156; Lincoln: Muthesius 1995, 341–345.
- 194 Hald 1950, 116; Pedersen 2006, 349.
- 195 Museumnumber C4291, with 36/52 threads per cm. Bender Jørgensen 1986, 227; Brøndstedt 1936, 101; Hald 1950, 119; Hedeager Krag and Ræder Knudsen 1999, 161–164; Hedeager Krag 2005, 29.
- 196 Hougen 1973, 77.
- 197 Vedeler forthcoming.
- 198 Nicolaysen 1882, 48.
- 199 Grave nos 731 and 750, both dated to the 10th century (Geijer 1938, 68–69, 165–166).
- 200 Nockert 2006, 336.
- 201 Bender Jørgensen 1992, 161.
- 202 Graham-Campbell 1980, 102.
- 203 Nockert 2006, 336.
- 204 At Birka (Geijer 1938, 79), Oseberg (Nockert 2006, 153–159), St Ihre? (Bender Jørgensen 1986, 237), Önsvala (Nockert 1982, 204–206), Tampere Vilusenharju (Tomanterä 1978, 17), Ness (Arntzen and Sjøvold in prep.), Hørning Church (Hedeager Krag and Ræder Knudsen 1999, 161–164), Slots Bjergby (Hedeager Krag 1998 126), Gokstad (Hougen 1973, 77; Vedeler forthcoming), Mammen (Hald 1950, 109–112), Eura Luistari (Lehtosalonen-Hilander 2000, 13) and Hvilehøj (Hald 1950, 119).
- 205 Arntzen and Sjøvold in prep.
- 206 No. C138. Hald 1950, 109–112.
- 207 See Chapter 1 for further description on tablet woven bands from Oseberg.
- 208 NM C31320. Hedeager Krag and Ræder Knudsen 1999, 164–165; Hedeager 1999, 429–433.
- 209 Graves nos 524, 551, 561, 569, 571, 643, 731, 735, 750, 791, 823, 824, 825, 844, 845, 855, 861, 903, 943, 962, 965, 977, 1076. Some graves were made for more than one person. These are Nos 750, 735, 861, 731 (Geijer 1938, cat. p. 176–179).
- 210 Geijer 1938, 79.
- 211 Hald 1950; Hougen 1933; Nockert 2006; Raknes Pedersen 1988; Schlabow 1976.

A SHORT INTRODUCTION TO TECHNIQUES

It is useful to introduce the main techniques used to produce the silk products found in Scandinavia. The field of production techniques is a large one on its own, and is not the main issue addressed in this book. This introduction is therefore relatively short and general.

The silk finds from archaeological contexts in Scandinavia consist of both woven and sewn silk products. The woven fabrics are made in either the weft-faced compound twill technique (samite), in tabby or tablet weave. A smaller group of finds are textiles with silk embroidery, either made with silk thread or with a metal thread with a core of silk.

Production of Raw Silk

Raw silk is secreted by silk worms spinning themselves into a cocoon to become butterflies. A number of different species make silk thread in this way. They are divided into two different families, the *Bombycidae* and the *Saturnidae*. The most important species for silk production is the *Bombyx mori* from the *Bombycidae* family. This type feeds only on leaves from mulberry trees, and the climate and conditions for growing mulberry trees is therefore essential for the production of raw silk. Cultivation requires both skill and a suitable climate to succeed. The feeding routine of the silk worms is also essential to both the quantity and the quality of the raw silk produced. Each silk worm is able to produce up to 1000 m of unbroken silk thread, building up three sections in their cocoon.²¹² To harvest this precious unbroken silk thread, the cocoons have to be put into boiling water, killing the silk worm at exactly the right moment before it breaks through the silk to be hatched.

When the silk worms spin themselves into their cocoons, the larvae secrete two separate threads of silk, glued together by a fluid called *ceresin*. The *ceresin* make the thread look dull, and prevents external fluids from penetrating the silk surface. To make the silk shiny and ready for dyeing, the *ceresin* has to be washed off with water. When this is done, the two separate silk threads are laid free. To extract the thread, the cocoons have to be unwound. This process is called *reeling*. Two or more of these threads can eventually be twisted together again to make a stronger and thicker yarn. This is known as *silk throwing*.²¹³



Fig. 23. *Bombyx mori*. Photo: P. Gibellini, Creative Commons CCO 1.0

Moriculture (growing and cultivation of mulberry trees) and sericulture (breeding of silk worms) were conducted in many places in the Persian and in the Byzantine areas as well as in China and India in the early medieval period. I will return to the most relevant production sites for the silk fabrics found in Viking Age Scandinavia in Chapters 6 and 7.

Dyeing of Silk

The dyeing of silk is an important and independent process in the production of silk fabrics. Arab and Persian sources sometimes describe dyers as a separate profession among textile artisans, for example the art of kermes dyeing connected to a special branch of Jewish craftsmen in the 9th century.²¹⁴ A long list of plants, insects, shells, shellfish and metals have been used as dyestuffs in prehistory. The sources, traditions, technology and science of dyeing are thoroughly described by Dominique Cardon in her book *Natural Dyes*.²¹⁵ The following paragraphs focus briefly at some of the dyestuffs that we can currently link to the Viking Age silk

finds from Scandinavia, mostly based on this work.

Only a few of the silk textiles found in Scandinavian graves have been analyzed to detect the dyestuffs that were used to produce colour, and in these few silks, only a few different dyestuffs have been detected. Extraordinary as it seems, these few samples all showed traces of red or reddish colours. We know that a number of other colours must have been in use to produce the complex patterns in the samite fabrics, but these have so far not been traced.

Lichen Purple

Lichen dyestuff can be extracted from a number of different wild plant species. Silk fabrics found in monumental mounds in Mammen and Jelling in Denmark have been proven to have been dyed with orchid lichen.²¹⁶ The dyestuff found in the Jelling grave has been identified as remnants of either *Lecanora* or *Rocella* plants. *Rocella* gives various shades of lilac, pinks, reds and violets. Mordanting with alum, produces, according to a text from 1750, colours known as 'pansy' and 'amaranth' from *Rocella*, while a tin mordant produced a 'mock Scarlet' red.²¹⁷ *Rocella* plants are orchid lichens, growing in tufts on coastal cliffs. Several species of *Rocella* used as dye sources in prehistoric times grow around the Mediterranean coasts, the Atlantic coasts of North Africa and in southern Europe. The traces of orchid lichens on the silk finds from Denmark have been used as an argument for placing the origin of these silks in the Mediterranean area or the Middle East region.²¹⁸

Madder

The varied plants used as dyestuffs called madder cover a number of species with one thing in common: they can be used to produce a bright red dyestuff. Their botanical family name is Rubiaceae. Madder had a widespread use throughout the medieval period and beyond, growing in large parts of the world. Traces of madder have been found in silk fabrics from Oseberg in Norway and Mammen in Denmark.²¹⁹ The Rubiaceae plant most relevant for dyeing silk from Asian and Byzantine areas is *Rubia tinctorum*, the so called 'Dyer's Madder'. The colorants used as dyestuff are concentrated in the plant's system of long branching roots. Dyer's Madder grew naturally in the eastern parts of the Mediterranean and the Middle East but was, early on, exported to China and other eastern parts.²²⁰ A number of written sources mention the use and export of madder. The area in and around Armenia was famous for its madder dye and exported the dyestuff to many places. Both raw silk and madder were produced in Bardhia, the capital of Arran, and exported south to Fars and other textile producing regions. The province of Mucan situated north of Gilan as well as the province of Khurasan also produced madder, and was mentioned for this reason by many of the early Arab geographers.²²¹



Fig. 24. Rocella tinctoria. Photo: Norbert Nagel, Creative Commons CC BY-SA 3.0



Fig. 25. *Rubia tinctorum*. Photo: H. Zell, Wikimedia Commons GNU F.D.L

Kermes

As mentioned previously, the small shield-louse *Kermes vermilio* was used to produce one of the most valuable dyestuffs in the ancient world. Female insects were collected when full of unlaid eggs, at a stage when the greatest amount of colorant is present. Approximately 60–80 dried insects are required to produce 1 g of Kermes dyestuff. *Kermes vermilio* feed only on the Kermes oak tree (*Quercus coccifera*). This tree grows in the Mediterranean area and on the eastern Adriatic

coast line. It used to grow in Lebanon and Israel but is no longer detectable in these areas.²²² Among the silk finds in Scandinavia, only one fragment found in Oseberg has so far proved to be dyed with Kermes, in combination with Madder.²²³

Several early written sources indicate that the Kermes dyestuff was used in the production of textiles at several places in the early Islamic world as well as in Byzantium. According to Al-Djāhiz, the best 'Kirmiz'-dyed products were made in the land of Wasit south of Baghdad.²²⁴



Fig. 26. *Kermes vermilio* on *Kermes oak tree*. Photo: Sandy Rae, Creative Commons 3.0

Several places in Armenia are also mentioned as 'Kirmiz' producers. It is, however, not clear whether the 'Kirmiz' dyestuff mentioned in early Arab texts always refers to the use of the insect *Kermes Vermilio*. According to Domenic Cardon, the Persian name *Kirmiz* originally referred to the Armenian carmine, a parasite insect living on Gramineae grass, but the same name was also used by Arab geographers for insects living on oak trees in Maghreb and Al-Andalus, probably referring to *Kermes vermilio*.²²⁵ The confusing use of the name 'Kirmiz' makes it difficult to interpret the production of Kermes dyestuff in the early medieval period. This point is well illustrated in a passage written by Al-Djāhiz in the 9th century:

They claim that Kirmiz is a grass in the root of which there is a red worm. It grows in

three places in the earth – in the Maghrib district, the land of Andalus, and in a district called Tarum, and in the land of Fars. Nobody knows this grass and where it is to be found, except a sect of the Jews who have charge of collecting it every year in Māh Isfandārmudh (the twelfth month of the solar year). That worm is dried, and ibrisim silk and wool, etc., are dyed with it.²²⁶

Spinning of Silk Thread

When the silk thread comes out of the cocoon, it is in principle almost finished and ready to use. In China there is, for this reason, no tradition for silk spinning and most of the silk products coming from this region are unspun. In other production areas, however, there is a long tradition of spinning threads of silk. It has been discussed whether or not spinning of silk thread can be used as a criterion for provenience. In my opinion, it is very difficult to use spinning as a criterion for differentiating finds from other production areas than China. Warp threads in products made in many of the Persian and early Islamic production areas bear traces of spinning. This is just as much the case for products made in the Byzantium Empire. Fabrics made in the Byzantine Empire and in the east Mediterranean area are characterized by their often z-spun warp. No difference has been observed between the Syrian areas of Tyrus and Sidon, and fabrics from Alexandria in this matter.²²⁷ Silk fabrics produced in the Near East and central Asia in the early medieval period are likely to have either no spinning or z-spinning in their warp.

Being an expensive raw material, the silk had to be exhaustively exploited to maximize profits. Damaged cocoons, surface floss and waste material are also valuable resources. In order to use the short fibres from this material as thread, the silk has to be spun. Low quality silk fabrics made from this kind of waste material were known by the name of *koukoularikon* in Byzantium.²²⁸

The Weaving of Fabrics

The majority of the woven silk fabrics found in Scandinavia are made in a weft-faced compound twill technique, often called *samite*. This technique is closely associated with the drawloom.²²⁹

Weft-faced compound weaves have two warp systems: binding warp and inner warp. The weft, which is usually divided into several colour series making a pass, covers the entire warp and makes a unitary structure visible on the surface of the front side of the textile. Between each binding warp thread is one or more inner warp threads. The presence of the inner warp extends the float of the weft, and its position in the shed affects the pattern of the textile.²³⁰ This is the main rule for all weft-faced compound weaves. Many of the Scandinavian silk finds are made in 2/1 weft-faced compound twill.²³¹

Criteria often used for grouping of silk textiles made in weft-faced compound twill are the binding, the characteristics of the warps (single or double), the spinning, the twill diagonal direction, the amount of weft threads (series) in each pattern repeat and the density in the weave.²³²

The *samite* fabrics were made with single, double or triple inner warp. The construction of the inner warp is considered an important criterion for grouping,

but this is not a simple criterion that can be used to interpret the provenience of a specific textile. Fabrics interpreted as Sogdian have, for example, been made with single, double and triple inner warp.²³³ By the late 8th and early 9th centuries the double main warp became a common feature of fabrics made within Byzantium. But these were also used within textile producing centres in central Asia.²³⁴

The question of how and when the first double inner warp appeared has been a matter of discussion.²³⁵ However, examinations of woollen textiles from Mons Claudianus in Egypt have shown that both techniques were used in Egypt as early as the 2nd century AD.²³⁶

Fabrics with uneven and irregular web are sometimes attributed to provincial production areas without skills and traditions for top quality products. However, the large and varied number of written sources that are preserved from the production areas suggests that many places of production made a variety of qualities adapted to different markets and buyers. Density and balance in the web can, however, indicate the value of the fabric.

A smaller amount of silk fabrics found in Scandinavian Viking Age graves have been made by the use of tabby weave. The tabby weave is the simplest and oldest of all weaving techniques. The report consists of two warp threads and two weft threads. Each weft thread is taken over one thread and then under the next thread in the warp.²³⁷

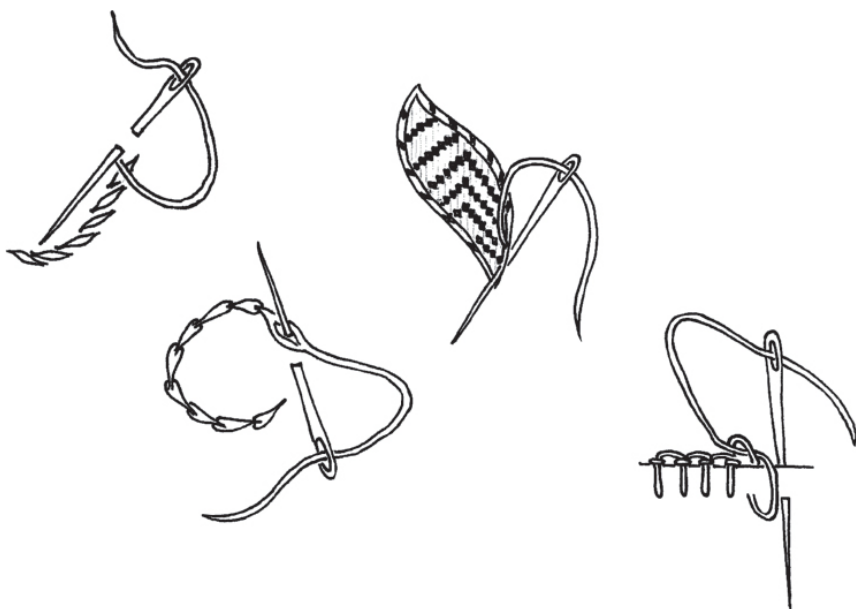


Fig. 27. Embroidery stitches. From left to right: stemstitch, split-stitch, laid-work and buttonhole-stitch

Tablet Weave

Several types of braids and borders can be made by use of small, square-shaped frames called 'tablets', made out of antler, bone or wood. Few or many of these tablets are used depending on the width of the braid and the complexity of the

pattern. These thin tablets are punctured, usually in each of their four corners but sometimes also with additional holes. A warp is built by pulling threads through the holes. If the tablets are turned, sheds (openings) are created for the passage of the weft.²³⁸ Variations in the weave are made partly by changing the twist direction of the tablets and partly by the way warp threads are threaded through the holes. Tablet weave is often characterized by a twisted outlook appearing when the warp threads have been turned in the same direction several times, but tabby and double weave can also be made with tablets. Brocaded patterns can also be built on a tablet woven ground.²³⁹ Remnants of tablet woven braids have been found in 12 of the sites in this survey.²⁴⁰ Many of these are poorly preserved and therefore difficult to analyze. When the weft is made of metal-wrapped thread and the warp made in another material, the weft is often the only remaining part of the braid.

Metal-wrapped Silk Thread

Nearly half of all the Viking Age silk sites in Scandinavia revealed silk in combination with gold or silver thread. The metal thread has often been used in tablet-woven bands, but it also occurs in embroidered textiles. Generally, two types of metal-wrapped silk thread have been in use. Thin sheets of gold or silver cut into narrow strips called lamellae are wound around a core of silk (or linen). Another method is to use gilt membrane strips for which gold sheets are beaten onto an animal membrane, cut into lamellae and then wound around a core of silk.²⁴¹ Further research needs to be done on the Scandinavian material to find what methods that has been used in each product.

Braids made with metal-wrapped silk thread are known from many European archaeological sites dated as early as the 7th century onwards.²⁴² In Scandinavia, metalwrapped silk thread has been found at 10 of the Viking Age archaeological sites.²⁴³ The sites are spread across the research area, in modern Norway, Sweden and Denmark as well as in Finland. Both silver and gold are represented among the finds, in four cases both have been used in the same product.²⁴⁴

Embroidery

Remnants of embroidered silk have been found at five of the Scandinavian sites included in this survey.²⁴⁵ Many of these embroideries are poorly preserved and the techniques used can therefore no longer be detected. Still others await technique analysis. In the cases where seams are well preserved and analyzed, several stitch-types have been observed. Split-stitch, stem-stitch and satin-stitch as well as laid-work and buttonhole-stitch have been used.²⁴⁶ The split-stitch is mainly used to fill larger areas.²⁴⁷ To make split-stitches, the needle is inserted in front of the last stitch and drawn backwards to split the thread in the preceding stitch. Stem-stitch is made by inserting the needle in front of the last stitch, move it backwards and up again at the centre of last stitch.²⁴⁸ Stem-stitch, or sometimes laid-work, has been used to make contours.²⁴⁹ Laying one or several threads on the surface and securing them by a stitch made with another thread is called laid-work. This technique can be used either as a contour or to fill figures or frames with embroidery. By using this technique with metal-thread, most of the precious metal will be visible on the surface of the embroidery.²⁵⁰ Buttonhole-stitch or

blanket stitch is often used as a purely practical stitch, but can also be used for embroidery.²⁵¹ The needle is inserted from the back up and then backwards through the back of a loop made in the transition between two stitches.

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- 212 Muthesius 1997, 5.
213 Baines 1977, 39; Geijer 1980, 14–16.
214 Serjeant 1972, 65; see quote below, under the description of Kermes later in this chapter.
215 Cardon 2007.
216 Krogh and Leth Larsen 2007, 129; Walton 1991, 140.
217 Cardon 2007, 498.
218 Walton 1991, 140.
219 Vanden Berghe 2010, 6; Walton 1991, 140.
220 Cardon 2007, 108.
221 Serjeant 1972, 69–72, see also map in Chapter 6.
222 Cardon 2007, 611–613.
223 Vanden Berghe 2010, 6, See Chapter 1.
224 Serjeant 1972, 36.
225 Cardon 2007, 609.
226 Serjeant 1972, 65.
227 Nockert 2006, 282.
228 Jacoby 2004, 208.
229 Crowfoot, Pritchard and Staniland 1992, 85.
230 Strömberg *et al.* 1974, 40–41.
231 Characterized by diagonal lines on the surface. The passage of successive weft-threads is staggered by one warp-thread to the right or left.
232 Desrosier 2004, 14–18; Nockert 2006, 282.
233 Nockert 2006, 282.
234 Shepherd 1981, 119–122.
235 Beckwith 1989; Muthesius 1997; Wilckens 1992.
236 Desrosières 2004, 16.
237 Strömberg *et al.* 1974, 88.
238 Burnham 1980, 139.
239 Strömberg *et al.* 1974, 10.
240 Oseberg, Gokstad, Ness, Birka, Valsgårde, Önsvala, Hvilehøj, Hørning Church, Mammen, Slots Bjergby, Eura Luistari, Tampere Vilusenharju. See Chapter 2.
241 Hardin and Duffield 1986, 233.
242 Pritchard 1988, 152.
243 Gokstad, Ness, Birka, Valsgårde, Önsvala, Hørning Church, Mammen, Slots Bjergby, Eura Luistari, Tampere Vilusenharju. See Chapter 2.
244 This is the case for Önsvala, Mammen, Slots Bjergby and Tampere Vilusenharju. See Chapter 2.
245 Birka, Valgårde, Hvilehøj (probably), Gokstad, Oseberg. See Chapters 1–2.
246 Nockert 2006, 399; Østergård 1991, 134–135.
247 Franzèn *et al.* 2012, 15.
248 Franzèn *et al.* 2012, 10.
249 Nockert 2006, 325.
250 Franzèn *et al.* 2012, 42.
251 Morrell 2007, 13.

EXCHANGING SILK

Silk textiles from the Viking era are a small but exclusive group of archaeological finds in Scandinavia. The combination of expensive raw materials, the necessity of highly specialized craft skills in the production and the long distance to the production centres makes one wonder how the silk fabrics came to Scandinavia. The silk fragments are produced in many different qualities. Some have been interpreted as having been produced in Byzantine or related Mediterranean workshops, some in Central Asia and a few fragments are probably made in China. There is little doubt that the silk as such had a special significance as a status marker in the early Middle Ages, both in production areas and in Scandinavia. Yet, both the preserved silks and written sources indicate a wide repertoire of price and quality even at this early stage of silk consumption in the north. Archaeological evidence and written sources give us reason to regard the trading and gift exchange of silk as part of complex systems of distribution.

The Value of Silk

Written sources and archaeological evidence suggest that silk articles were cherished and prestigious objects in the 9th and 10th centuries in Scandinavia, in Western Europe and in the production areas.²⁵² It is likely that not only an area, but even each workshop, could produce different qualities, with different price and availability accordingly. There are several examples of written sources from the early medieval production areas describing this. An example comes from the province of Djurdjan,²⁵³ where there seems to have taken place a massive production of different kinds of textiles in the early medieval period, including “a great deal of ibrisim silk”, according to a writer in the 11th century. An observer from the 10th century states that “The people of Djurdjan have silken veils which are taken to Yemen (...) and brocade of a poor kind”.²⁵⁴

Written sources also give us a hint of the large variety of silk that existed in the Byzantine Empire. Silk came in all varieties and qualities.

Clearly, it is difficult to assess the price of the silk textiles found in Scandinavia. But if we look at the silks found in Oseberg, there are certainly differences in both quality and the value of dyestuff used, indicating that silk of varying value exists even within a single grave context (see Chapter 1).

From a preserved negotiation agreement between Rus and the Byzantine emperor dated to the year c. AD 945, we learn that if a Rus merchant lost a slave

on Greek territory he could be compensated by the payment of two pieces of silk per slave. Even though we do not know either the size or the quality of these pieces of silk, it is clear that silk represented significant monetary values. At this time, Rus merchants were given the right to buy silk up to the value of 50 *bezants*, on the condition that the goods were registered and a receipt stamped by an imperial official.²⁵⁵

The *Book of Eparch*, compiled in the early 10th century, offers an important insight into the highly regulated silk production and trade in Constantinople. It shows that trade and production of high and medium quality silk was strictly controlled and already organized in guilds by this time.²⁵⁶ There is also written evidence that silk was sold to Rus merchants in the city of Constantinople in the mid-10th century. Given the strong connection between Rus and Scandinavia, it is therefore reasonable to assume that, in this period, silk could have been sold directly to Scandinavian merchants in Constantinople.

Officers employed by the Abbasid dynasty were rewarded by an annual gift of clothing. This custom of rewarding by gifts of textiles and clothing probably constituted the foundation for the establishment of specialized palace factories producing textiles.²⁵⁷ The quality and value of the textiles given as reward varied according to the rank and social status of the receiver.

As a result, the Caliph needed textiles of varying quality. The distribution and control of classified textile types and qualities from different parts of the empire was controlled through an institutionalized system called *Tiraz*. Serjeant sees the development of the Tiraz system as having developed from a tax system based in the earlier Sasanian textile factories. As part of the land tax to the king, each province was required to deliver regional specialities. *The History of the Kings of Persia*, written before 1021 AS, claims that “Balâsh made the inhabitants of each province supply their special products, consisting of *objets de vertu* and clothing (...). He ordered the cost of them to be reckoned as part of the land tax and imposts”.²⁵⁸ The province of Djurdjan had to pay 1000 pieces of ibrisim silk as part of the tribute to the Caliphs in the 8th century. The large variety of preserved type designations shows that there must have been variations in both quality and price within each Tiraz area (see Chapter 6 for more on Tiraz products). Furthermore, it is reasonable to assume that such a system also constituted guidelines for silk textiles made for regular trade. Several written sources describe regular silk trade in towns with Tiraz factories. The silk products of Djurdjan were exported and sold to merchants from many parts of the world, probably including the Rus, who, according to Ibn Khurdadbiḥ, came there to sell their beaver skins, black fox-skins and swords.²⁵⁹

Silk Trade

The majority of the woven silk fabrics found at Oseberg were most likely produced in Central Asia, while two fabrics have been interpreted as Byzantine or Mediterranean. At Birka, the majority of finds have been interpreted as products from the Mediterranean area in the Byzantine sphere.²⁶⁰

Following the major routes of exchange, the eastern silk could have come to Scandinavia either from the Baltic areas through the Russian waterways, or through trading stations in Western Europe. When the burial mound at Oseberg

was raised in AD 834, the town Kaupang was situated about 44 km to the south. Is it likely that the precious silk could have come through Kaupang to Oseberg? I think that this is a possibility. Recent excavations at Kaupang have revealed archaeological finds bearing witness to extended trade with goods made in the Caliphate and Mediterranean lands in the 9th and early 10th centuries; the goods include glass beads, cornelian and rock crystal beads, probably also ingots of copper alloy as well as a large amount of coins minted in the Caliphate.²⁶¹ It has been argued that the goods probably came to Kaupang by two different routes. The eastern route, from the Caliphate via eastern Scandinavia, was probably frequently in use throughout the town's history. This eastern route can be subdivided into at least two separate main routes, one running along the eastern Russian waterways connected to the Volga and the other along the River Dnjepr and connecting rivers. The western route, arriving through the Frisian lands, seems to have been in use in the early 9th century.²⁶² The luxury silk goods could have been transported along a continental route over land and then on ships from, for example, Dorestadt or Hedeby, to Kaupang together with more affordable goods. In the second half of the 9th century, Anglo-Saxon and Carolingian towns along the North Sea coasts declined and the North Sea trade seems to have collapsed, leading the surviving towns to focus on trade through the Baltic area.²⁶³

If we look at the distribution of preserved silk in Western Europe, over 1000 early medieval eastern silks have been found spread around this area.²⁶⁴ Finds in Chelles, Sens, Rome, Aachen and Trier are directly comparable to the samite silks from Oseberg.²⁶⁵ Anna Muthesius, who has made an extensive study on early medieval silk in Western Europe, concludes that trade routes carrying other Mediterranean goods fit well with the distribution of silk remains in Western Europe.²⁶⁶ She refers to a route passing through Italy across the Alps to Switzerland, then northwards into France, the Netherlands and Germany. Muthesius interprets two-thirds of the western silks as being of Byzantine provenance. Concentrations of Central Asian silk in particular have been found in the Lowlands. As in Scandinavia, few Chinese silk fragments have been found in Western Europe dating to before the 13th century.²⁶⁷

It could be argued that goods from the Caliphate and from Mediterranean lands probably came through Danish waters to Kaupang during the first part of the 9th century.²⁶⁸ Silk, in the form of tabby 'bands', has been found in three graves at Hedeby.²⁶⁹ Considering the total amount of rich and well preserved textile material found at the harbour and settlement areas in the town, this is a relatively modest number, and the silks are of a different kind to those from Oseberg, but this could very well be explained by the special conditions required for silk to be preserved in archaeological contexts. The Ladby ship grave, not far from Hedeby, contained material that has been interpreted as remnants of kaftan clothing, but no silk was preserved.²⁷⁰

Some of the silk products probably came to Scandinavia through Western Europe; but, although this is one possibility considering the Oseberg silks, broader archaeological evidence in the Scandinavian region suggests that the most plausible routes for trading silk in most of the Viking Age went through the Russian waterways and the Baltic.

The silk could probably have been obtained by way of gift exchange (see below). Still, trading centres like Kaupang must have been major relay stations even for the

aristocracy, with a possibility to deliver prestigious goods as well as affordable crafts for sale. As I shall argue later, trade and gift exchange were probably not completely separated spheres but rather interlinked, both in terms of people involved and the routes of travel. In this view, the merchants played a key role in both goods-exchange and in the diffusion of new cultural ideas and fashion.

Traditionally, archaeologists working with material from Norway have had a special focus on the interaction between Norway and the British Isles, while Swedish archaeologists have been looking more eastwards. This is also the case when it comes to interpretations of silk finds. Margareta Nockert, who published the Oseberg silks in 2006, argued that the silk probably came to Oseberg through Viking raids to the west.²⁷¹ Agnes Geijer, who published the Birka silks in 1938, explains the arrival of the most common type of silk (S4) in Birka with strong connections with the Byzantine Empire, highlighting the Kiev-trade along the River Dnjepr.²⁷² In her doctoral thesis, Annika Larsson challenges Geijer's explanation suggesting that the Volga route to the Caspian Sea must have been the prime route for the silk trade to Birka in the 9th and 10th centuries. She argues that the establishment of the Kiev realm in the late 9th century and, thereby, higher taxation of trade must have created a barrier to trade along the Dnjepr for Scandinavian merchants between AD 850 and 950.²⁷³

The Swedish silk material has been interpreted as part of a system of gift exchange or as traded goods that came along the Russian rivers, while the Norwegian silk has been looked upon as booty from Viking raids to the British Isles. As we have seen earlier, there are some differences between the finds from Oseberg and those from Birka both in the time of deposition and in technical production details. Despite these differences, I will argue that the two major eastern trading routes along the Russian rivers Dnjepr and Volga are the most likely routes for the arrival of silk to both Oseberg and to Birka. I believe that the silk trade as well as delivery of gifts probably took place along both these routes during both the 9th and 10th centuries, not through just one of them. In addition, some silk could have been brought to Scandinavian areas through Western Europe in the early 9th century. Long distances and huge obstacles along the way must have made trade difficult along all these routes, making the silk even more precious when it finally arrived in Scandinavia.

Silk as Gifts

Both the economic value of silk and its symbolic meaning as status marker give reason to regard silk as a potential part of gift-giving among the aristocracy as well as trade goods.

All Viking Age silks found in Scandinavia have been found in high status contexts, in mounds and/or in graves with extensive and costly grave goods.²⁷⁴ Lise Bender Jørgensen has suggested that silk functioned as a prerogative of rank even in Merovingian society on the European continent.²⁷⁵ In Germany and France, silk has been found in presumably royal graves and graves of high officials like bishops and commanders.²⁷⁶

In the main areas of production, the status value of silk fabrics is well documented by written sources²⁷⁷ and the economic and political importance of silk production in Byzantium and other silk-producing centres in the early

medieval period can hardly be overestimated.

Written sources confirm that gift exchange must have been an important factor in the export of silk from east to west. Several medieval sources describe silk as a natural part of gift giving between rulers. Unfortunately, no such sources exist for the silk finds from Scandinavia. Is it then reasonable to assume that silk products were given as diplomatic gifts to leaders in the Scandinavian areas?

Gifts were part of the fabric of society in the Caliphates as well as in Byzantium. It is therefore not surprising that gift giving became an important part of their foreign policy, as shown in written documents. Several historical sources document the use of silk fabrics in early medieval gift exchange from the Byzantine court to the west.²⁷⁸ Byzantium ranked silk as diplomatic gifts alongside gold and silver.²⁷⁹ But gifts were not only used to strengthen ties between friends and allies. Gifts given as sweeteners in negotiations, as instruments used in processes of prisoner exchange and as part of peace treaties and in marriage alliances, are all documented parts of Byzantine and Islamic societies in the Viking Age. Gift giving can thus be seen as an instrument of governmental policy.²⁸⁰ Surprisingly often, various forms of textiles and clothing are visible parts of gifts used in diplomacy, with silk standing out as ‘the king of gifts’.

The most luxurious Byzantine silk textiles from the early medieval period bear imperial inscriptions. These are probably examples of what Muthesius calls ‘silken diplomacy’. The silk tapestry from Archbishop Gunther’s grave (d. 1065) was probably originally a diplomatic gift from Emperor Constantine X to Emperor Henry IV.²⁸¹

According to the *Russian Primary Chronicle*, Olga, the ruler of Kiev, travelled to Constantinople in the year 948–949 to be baptized. At the same time she conducted marriage negotiations with the emperor. Before her return to Kiev, “he gave her many gifts of gold, silver, silks and various vases (...)”; thus Olga arrived in Kiev, and the Greek Emperor sent a message to her, saying, “inasmuch as I bestowed many gifts upon you, you promised me that on your return to Rus you would send me many presents of slaves, wax, and furs, and dispatch soldiery to aid me”.²⁸²

Thus, silk was probably used as diplomatic gifts from the Byzantine Empire to Rus in periods requiring political alliances. But is it likely that such gifts were used in interaction between the Byzantine Empire and remote areas in Scandinavia? I think it is likely that Scandinavian princes and aristocrats serving the Emperor in the late 10th and 11th centuries could have received silk robes of honour from the Emperor. When the Norwegian king Harald Hardråde served in the Varangian guard in the service of the Emperor Michael IV (AD 1034–1041) he was, according to *Cecaumenus Strategion*, appointed to the rank of *Maglabites* after Sicily had been conquered. Later, after having served the Emperor in Bulgaria, he got the rank of *Spatharokandidatos*.²⁸³ The *Cecaumenus Strategion* was probably written during the reign of Michael VII in 1071–1078.²⁸⁴ At this time, the imperial ceremonies had strict rules including an intricate system of ranks, symbolized in special clothing. The quality of silk and the dyestuff used was regulated in detail for ranks and positions in the Court.²⁸⁵ It is therefore likely that King Harald Hardråde received ceremonial silk attire during his stay in Constantinople.

Anthony Cutler has emphasized the importance of gift display. He sees the act of display as a tool to activate and publicize the objects symbolic and real value.²⁸⁶

The documentation of gift giving, for example as shown in the *Book of Gifts and Rarities*, could have a similar function, in addition to keeping track of valuables obtained and given.²⁸⁷

Many of the written sources reveal a typical economic approach to gift exchange and documentation of value. In several documents there is a clear connection between the symbolic value of a gift and its economic value, which is conscientiously recorded. One example is from the text of Hilal al-Sabi, 'Rules and regulation of the Abbasid Court', where he lists gifts from Prince Adud al-Dawla to the Caliph in the year AD 977: in this year, the Prince gave away 500 garments of varying quality, from costly brocade worth 200 dinars to simple white garments.²⁸⁸

There has not been, however, necessarily a clear distinction between economic relations and diplomatic gift exchange in early medieval Europe. David Jacoby has showed that Byzantine diplomatic envoys used ships engaging in commercial transportation when sailing between Constantinople and Egypt in the 12th century.²⁸⁹ Anthony Cutler has recently addressed this question, using a number of early medieval Byzantine and Persian written sources to illustrate a clear link between trade and diplomatic gift exchange between east and west. A number of sources indicate that traders participated in the gift exchange; one of these was Liutfred, a rich merchant from Mainz, described as the bearer of royal gifts, as he hands over to Constantine VII gifts from the Italian King Berenger in return for the gifts that the emperor had sent in the year 949. Cutler goes so far as to say that the term 'ambassador' or 'merchant' was given according to the purpose of the visit, and does not necessarily reflect a clear-cut distinction in attitude or mind of the representative.²⁹⁰ This point could also give a new dimension to the question of commerce and potential political gift giving of silk to Scandinavian aristocracy in the Viking Age.

As shown in the first two chapters of this book, there was a great variety of silk fabrics coming to Scandinavia in the Viking Age. The quality of the silk varies from high quality products dyed with Kermes to products with many weaving mistakes that probably formed a group of medium or lowerquality silk. The highest prestige products seem to have existed side by side with silk of medium quality. Thus, import of various silk qualities through trade probably took place at the same time as gift exchange among the elite.

Coins and Silk

Silk is a delicate material rarely preserved in archaeological contexts. The small number of finds in Scandinavia makes it difficult to draw conclusions based only on statistics. It is therefore tempting to see the silks in the light of more numerous imports from the same production areas. An important group of objects in this context is the coin finds. This group is far larger and also easier to track by provenience than textiles of silk. The large amount of dirham coins found in Scandinavia is clear evidence of a trading connection between these areas and the Islamic centres of silk production.

Over 150,000 dirhams from the Viking Age have been found in Eastern Europe and Sweden, 64,306 dirhams from Sweden alone. Most of these have been found in hoards.²⁹¹ The composition of these hoards has led leading researchers to interpret them as a reflection of Rus-Islamic trade activity. Measured by dirhams

found in hoards, Thomas Noonan concludes that the volume of Islamic trade with Eastern Europe and Sweden was three times greater in the 10th than in the 9th century.²⁹² On the other hand, in Birka graves dating to the 10th century, 9th-century coins dominate.²⁹³ Recent excavations in Viking towns like Kaupang have made it clear that hoards, stray dirham finds and re-used silver from towns, provide different, and apparently contradictory, pictures of the situation. How can this be explained? Kilger points out that melted dirhams used as jewellery and ingots make up an important extra dimension for interpreting trade. Kilger sees the distribution of coins as an indication of use in the find area, which can be different from the original purpose for which the coins were produced.²⁹⁴ The geographical differences in the spread of dirhams can thus be explained by differences in how silver coins were used in areas away from the original area of monetary use. Kilger suggests that both Kaupang and Hedeby functioned as central nodes for melting down silver that was redistributed to a larger regional sphere. This could explain the lack of hoards found in Norway. In this view, the use of dirham coins as payment was restricted to the central nodes in Scandinavia. In Kaupang, dirham silver seems to have been used increasingly during the second half of the 9th century up to AD 930, at the latest.²⁹⁵ Before this time, it is possible that coins were mainly melted down and re-used. This is a reminder of the difficulties with using coins as a main parameter of trade in all areas. Still, in areas where dirhams seem to have been used, it is reasonable to regard them as a sign of trade connection with the place of minting.



Fig. 28. Hoard from Grimestad, Vestfold (C26387) © Photo: Museum of Cultural History, UIO



Fig. 29. Dirham minted in Samarkand AD 814–816 from Kaupang, Norway. C52519/15088 (F1009538) © Photo: Museum of Cultural History, Univ. of Oslo

Archaeological finds show that a flow of Islamic dirhams reached Scandinavia from around c. 800 to the last quarter of the 10th century. These coins were primarily produced in the Abbasid and Samanid caliphates, but a number of dirham imitations found in Scandinavia were also struck by the Volga-Bulghar people who, like the Khazar, established political entities with coin production in areas along the trade routes to Scandinavia during the 9th and 10th centuries.²⁹⁶

In discussing silk trade to Scandinavia, it will be of special interest to take a closer look at the distribution of coins from silk producing areas to Birka and Kaupang, the two most important trading centres near the major sites of silk finds in Scandinavia. Fifty-nine coins found in Kaupang can be dated to the 9th and 10th centuries.²⁹⁷ The place of minting has been identified for 40 of them. As many as 19 pieces, or nearly 50%, were minted in Central Asia, most of them in areas well known for silk production, like Samarkand and Merv.²⁹⁸ Seventeen of these are dated to the 9th century. Apparently, this fits well with the silk finds from Oseberg, where all except two silk fabrics are interpreted as Central Asian, some possibly from the area east of Sogdiana.²⁹⁹ However, it has been argued that the 9th-century dirhams came to Kaupang a few decades later, perhaps from about AD 850 onwards.³⁰⁰ Blackburn argues that there are two distinct phases of monetary circulation at Kaupang. The first phase dates from about c. 820 to c. 840–50, when mainly western coins from the Frankish area, Denmark and England were in circulation. Then, he argues, a second phase began about c. 850 that was completely dominated by silver dirhams.³⁰¹ In any case, the presence of dirhams minted in silk producing centres along with preserved Central Asian silk in the nearby Oseberg provides evidence of trade relations along the eastern roads even in the early 9th century.

Three excavated sites at Birka revealed 135 dirham finds.³⁰² Yet, the number of dirham finds in Norway, Denmark and mainland Sweden is microscopic compared to Gotland Sweden, the gateway to the eastern trade routes. The composition and distribution of dirhams in Norway are similar to the finds from mainland Sweden, but differ from the finds from Gotland with its huge amount of dirhams coming

from the Caucasus and Armenia.³⁰³

Some of the coins found in Scandinavia were made in the kingdom of Bulghar in modern Tatarstan in Russia, where a smaller amount of dirham imitations were struck. Considering that one of the most important trade routes from Central Asia passed through Bulghar, this is interesting when discussing the silk trade to Scandinavia. Approximately 3500 dirham imitations have been found in Sweden, the majority of these minted in Bulghar.³⁰⁴ In Norway, 57 imitations have been found so far.³⁰⁵

The production of dirham imitations outside the Caliphate coincided with a period of restricted output of dirhams in the mid-9th century.³⁰⁶ Still, they seem to have reached Scandinavia as late as around c. 900, mixed with a new wave of dirhams produced by the Samanids.³⁰⁷

Several writers have suggested that ancient exchange and communication proceeded mainly between a few particular nodes, rather than randomly among neighbours. Søren Sindbæk points out that very few sites actually played the role of hubs, and that there was a relatively small and exclusive group of people who travelled recurrently between these few sites: "The oft-celebrated global connections of Carolingian and Viking Europe, then, were held together by a tiny core of travellers, passing between an even smaller number of locations".³⁰⁸ Silk was probably an ultimate luxury commodity traded by an exclusive group of long distance merchants. But even if we take into account a limited number of trading centres and merchants dealing in long distance trading, it is reasonable to assume that silk from distant locations like Samarkand or Constantinople changed hands along the way, at least at one location, but probably more often. Either way, silk produced in Central Asia reached Scandinavia as early as the first decades of the 9th century, probably through merchants with varied cultural backgrounds and motivations.

The high percentage of 9th century dirhams from silk producing places in Central Asia found in Kaupang shows that the silks from Oseberg could very well have arrived as traded goods through the town. Of course, the large flow of dirhams from the Caliphates is difficult to explain, but their presence shows us that other goods, like textiles and spices, could have been brought to Scandinavian trade centres in large quantities. The fact that few remaining traces of such goods have been found can be explained by the poorer preservation conditions for organic material.

Byzantine coins, in contrast, are seldom found in Scandinavia. Only two small Byzantine copper coins were found in Kaupang, probably dating to the 8th–10th centuries, while excavations at Birka revealed four Byzantine coins.³⁰⁹ In the whole of Sweden, only 15 Byzantine coins from the period between AD 829 and 945 have been noted. After this period, the situation changes remarkably, with 410 coins dating to the second half of the 10th century.³¹⁰ Even though coins minted in the Byzantine region are seldom found on Scandinavian soil, we know that silk products from this area did reach Scandinavia. One of the most commonly used trading routes from Constantinople to the northern areas was probably well established in the 9th century.

- 253 In modern Astarabadh by the Caspian Sea, in northern Iran near the border to Turkmenistan.
- 254 Istakhri, H. udūd al-ʿĀlam translated in Serjeant 1972, 80–81.
- 255 Cross and Sherbowitz-Wetzor 1953, 75.
- 256 Jacoby 2004, 205–206.
- 257 Serjeant 1972, 7.
- 258 Serjeant 1972, 7–15; Sotenberg in Serjeant 1972, 9.
- 259 Serjeant 1972, 80–81, 221.
- 260 Nockert 2006, 298; Geijer 1938, 65.
- 261 Skre 2011, 425.
- 262 Skre 2011, 426.
- 263 Skre 2007, 351; 2011, 426.
- 264 Muthesius 1990, 126.
- 265 Nockert 2006, 284–286, 292–293; Vedeler 2011, 142.
- 266 Muthesius 1995, 139.
- 267 Muthesius 1995, 137–140.
- 268 Skre 2011, 448.
- 269 Ten fragments in grave no. K5/1964, 1 frag. in grave no. 1/1963 and 1 frag. in grave no. 159/1960 (Hägg 1991, 208. See also Chapter 1).
- 270 Hedeager Krag 2006.
- 271 Nockert 2006, 298.
- 272 Geijer 1951, 17; 1972, 261.
- 273 Larsson 2007, 231.
- 274 There is one exception: Brista in Uppland, Sweden. In this case, the silk was found in a grave with oval and equal-armed brooches (B. Jørgensen 1986, 241).
- 275 Bender Jørgensen 1991, 145.
- 276 Graves with unidentified silk from the Merovingian period have been found in Cologne Cathedral and the monastery of St Severin of Cologne, (Fremersdorf 1941–1942), St Denis (Fleury and France-Lanord 1979), Morken (Schlabow 1958), Niederstotzingen (Hundt 1967), Planing (Keßler 1940), Perrusson (Motteau 1985) and the Abbey of St. Victor in Marseilles (Boyer 1977) cited in Bender Jørgensen 1992.
- 277 See Serjeant 1972 for numerous sources.
- 278 Cutler 2008, 80–101; Muthesius 1992, 244.
- 279 Muthesius 1992, 237.
- 280 Cutler 2008, 87.
- 281 Muthesius 1990, 237, 240.
- 282 Cross and Sherbowitz-wetzor 1953, 82–83.
- 283 Bagge 1990, 174.
- 284 Davidson 1976, 208–209.
- 285 Lopez 1978, 197.
- 286 Cutler 2008, 92.
- 287 Qaddumi 1996.
- 288 Cutler 2009, 258.
- 289 Jacoby 2004, 213; 2000, 100–101.
- 290 Cutler 2009, 266.
- 291 Noonan 1992, 238.
- 292 Noonan 1992, 241, 243, 247.
- 293 Kilger 2007, 206.
- 294 Kilger 2007, 242.
- 295 Kilger 2007, 199, 242–246.
- 296 Gullbekk 2008, 161.
- 297 Rispling, Blackburn and Johnsson 2007, 75–93.
- 298 Eight coins from Samarkand, 3 coins from Tashkent, 6 from an unknown place in Uzbekistan or Iran, 1 from Amol and 1 from Merv (Rispling, Blackburn and Jonsson 2007, 75–93).
- 299 Nockert 2006, 298, see Chapter 1.
- 300 Blackburn 2007, 52–53; Kilger 2007, 208.

- 301 Blackburn 2007, 70.
- 302 Blackburn 2007, 45–47.
- 303 Kilger 2011, 244.
- 304 Personal comment from S. Gullbekk, Univ. of Oslo.
- 305 Khazaei 2001, 58.
- 306 Kilger 2007, 224.
- 307 Blackburn 2007, 39.
- 308 Sindbæk 2007, 71.
- 309 Blackburn 2007, 60.
- 310 Hammarberg, Malmer and Zachrisson 1987, 9.

THE LONG JOURNEY TO SCANDINAVIA

In discussing alternative trading routes for silk to Scandinavia, I argued that the eastern routes along the Russian river systems were probably used for transporting the precious silk during most of the Viking Age. This chapter will deal with these routes, focusing on the way northwards from the largest production centres of the kind of silk that ended up in the Viking graves. As an extension of this theme, it is also interesting to take a closer look at the relationship between the rival centres of production and, in turn, their trading relations with people from northern areas.

A general growth of urban settlements with strong connections to Scandinavia emerged both in the areas we now know as the Baltic countries and in Russia and the state of Great Moravia between the 7th and 9th centuries.³¹⁰ The ethnic origin of these settlements is a matter of controversy which we shall not discuss here. However, it is highly probable that Scandinavian merchants travelled through the newly established Rus areas in the 9th and 10th centuries, as well as other people of different ethnic origins bringing goods northwards to Scandinavia.

The river systems of Volkhov-Lovat, Dniepr, Volga and Don formed a central nerve in communication and trade. From the northern strongholds of Rus a traveller could either go southwards, sailing along Dnjepr to the Black sea and finally reach Constantinople, or he could go further east, along the river Volga to the trading hub of Bulghar connecting the northern trade with the northern branches of the silk roads to Central Asia and China.

Early urban settlements in Staraja Ladoga, Novgorod and Pskov in north-west Russia were situated near waterways connected to the Baltic Sea. The archaeological material found here provides evidence for connections to Scandinavian culture as well as silk exchange. Let us start by discussing silk finds in this area before looking further east.

Silk Finds Related to Scandinavia in North-West Russia

The earliest dirham hoards in Russia have been found in Staraja Ladoga and at the upper Volga tribunaries.³¹¹ Ladoga is one of the oldest towns in Russia, and may be the same town that Snorre Sturlason called *Aldeigjuborg* in his sagas. The town could be reached by boat from the Baltic. From Staraja Ladoga, both the Volga and Dnjepr routes could be reached by rivers and portages. The archaeological remains from Viking Age Staraja Ladoga contain a wide range of artefacts, among them many that were clearly related to Scandinavia. The Ladoga collection of textiles

shows remarkable similarities with those found in later medieval Scandinavian towns.³¹² The majority of these textiles are made of wool. Among them there is one piece of clothing of special interest in this context: strips of samite silk have been sewn onto a fragmented piece of clothing made in linen tabby.³¹³ The fragment was found in a layer dated to the period before AD 810.³¹⁴ The silk strips attached to it are broader than the strips from Oseberg, the broadest being approximately 4 cm wide. This strip has been cut off and is now c. 20.5 cm in length. Remnants of blue and red colour can be seen on the surface, but the pattern has faded. Unfortunately, the provenience of the silk is so far unknown.

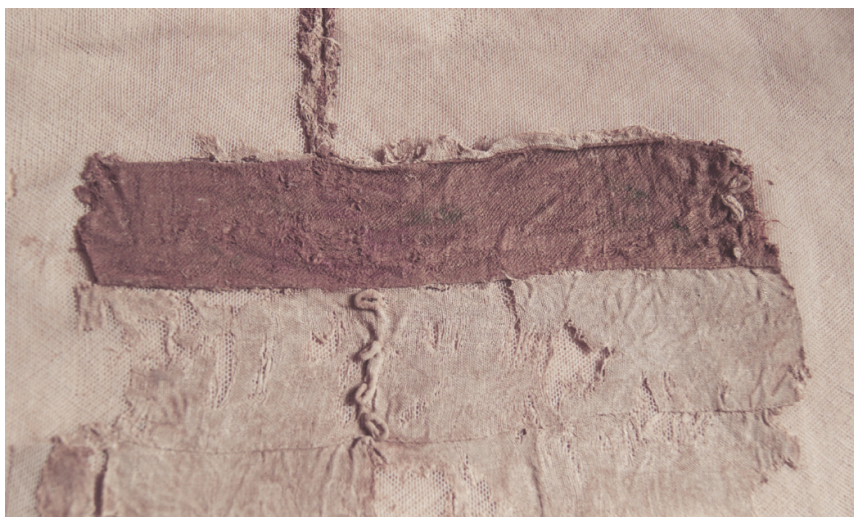


Fig. 30. Fragment of garment from Staraja Ladoga. Linen and silk. State Hermitage Museum, St Petersburg. Photo: Marianne Vedeler

In the old town of Pskov by the River Velikaja in north-west Russia, about 320 km southwest of Staraja Ladoga, another interesting silk find was discovered in 2006. Excavations of a grave dated to the late 10th century revealed remnants interpreted as an underdress and an apron, woven in blue tabby linen adorned with three types of silk fabric. The clothing lay in a birch-bark container together with two oval brooches of Scandinavian type.³¹⁵ Compared to Viking Age clothing found in Scandinavia, the remnants of clothing from Pskov are very well preserved. As in Oseberg, strips from several different silk fabrics were sewn onto the garments. Three types of samite silk have been identified, two with double inner warp, the third with a single inner warp.³¹⁶ The combination of silk strips suggests that the colour combination, rather than combination of patterns, had been in focus when the trimming was done.³¹⁷ The pattern on silk type no. I from Pskov is of a type often called ‘hunter silk’, depicting scenes with hunters and beasts. This pattern shows similarities with silks found both in the Caucasus and in several church collections in Western Europe.³¹⁸ It is worth noting that one of the samite silk fabrics found in Oseberg also has a similar hunterdesign.³¹⁹ The closest parallel to the pattern on the Pskov hunting silk is a fabric belonging to the parish

church of St Calais in France. Scholars disagree about the provenience of the Calais silk, but recent studies suggest that fabrics of this type may be Byzantine products making use of Sasanian motifs.³²⁰

Clearly, eastern silk was transported to Staraja Ladoga and Pskov during the Viking Age. At the moment it is difficult to pinpoint the place of production for all these silks and to assess whether both Byzantine and Central Asian silk was used in combination as in Oseberg. But the well preserved garment from Pskov shows that in this area combined silk strips from several different fabrics were used as trimming on dresses with Scandinavian characteristics. The finds from north-west Russia thus provide evidence of silk being transported on the Russian rivers in the direction of Scandinavia in the 9th and 10th centuries.

To Miklagard along the River Dnjepr

Archaeological excavations show that a line of strongholds was established along the Dnjepr in the Kiev area during the last two decades of the 9th century. One of the largest settlement sites of Viking Russia is situated near the modern city of Smolensk, on the right bank of the river Dnjepr. The complex, called Gnëzdovo, stretches between two tributaries of the river, with several settlement sites, eight cemetery groups and hillforts at the estuaries. Archaeological excavations in the area revealed a large quantity of artefacts related to Scandinavia.³²¹ Three mounds in the central cemetery group have revealed fragments of silk. Two lines of narrow silk strips were found in a man's grave, together with 24 bronze buttons.³²² The find has been interpreted as a man's kaftan. The second and third grave containing silks were women's graves. In one of them, red-gold worked silk, interpreted as a garment, as well as loose strips of silk, were found. The rich grave goods included two oval brooches,³²³ as well as dirhams minted between c. AD 960 and 970.³²⁴

Taxation of trade could have been a motivation for establishing these strongholds.³²⁵ It has been argued that the establishment of taxation posts along the Dnjepr blocked the trade from Scandinavia from the last decades of the 9th till the mid-10th century.³²⁶ But there is no reason to believe that the Kiev realm would have been interested in hindering Scandinavian trade by a tax overload. On the contrary, the keepers of Kiev strongholds were probably interested in encouraging trade along the Dnjepr. Strong connections between Kiev and Scandinavia combined with more organized tax collection could thus have made it easier for Scandinavian merchants to travel along the Dnjepr. An account of a peace agreement between the Rus and the Emperor of Byzantium in the *Primary Chronicle* provides interesting insights. According to the *Chronicle*, the agreement was made in c. 907. Prince Oleg of Kiev had brought his army of mixed descent to attack Constantinople. Retiring to areas outside the city, Oleg sent some of his men to make peace with the Emperor and to collect tribute. Among them were men with names of Scandinavian origin like Vemund and Hrollaf. The subsequent peace agreement secured the Rus as much grain as they required, and also gave Rus merchants supplies for six months, enough for their journey back up the River Dnjepr. The *Chronicle* also tells a story about sails of brocade that were made for the Rus and sails of silk made for Oleg's Slavic men:

The Russes unfurled their sails of brocade and the Slavs their sails of silk, but the wind tore them. Then the Slavs said, "Let us keep our canvas ones; silken sails are not made for the Slavs." So Oleg came to Kiev, bearing palls, gold, fruit, and wine, along with

every sort of adornment.³²⁷

If we believe the *Chronicle*, a trade agreement was made and silk carried from Constantinople along the Dnjepr in the very beginning of the 10th century. The Laurentian redaction of the *Chronicle* referred to here was probably written in the late 14th century on the basis of an early 12th-century source.³²⁸ The story is good, but as a historical source it should be used with care.

The journey along the Dnjepr from the Rus areas to the Byzantine capital of Constantinople was long, time consuming and hazardous. To reach their goal, the tradesmen had to be brave, patient and physically strong. Their paths were dangerous. According to written tales, they had to fight hostile tribes and navigate roaring waterfalls and treacherous marshlands before reaching *Miklagard*, the Great City. A written account of such a journey, probably from about AD 944, tells a fascinating story; *De Administrando Imperio* is believed to have been written by the Emperor Constantine Porphyrogenitus for the edification of his son.³²⁹ An assembly of merchants about to make a voyage down the Dnjepr took place in Kiev. The text does not describe in detail what kind of goods the merchants were carrying, except for slaves who were probably to be sold in Constantinople. Boats took them 45 km down the river from Kiev to Vitichev, where they waited for merchants coming from other towns to join them. The month of June came, and together they sailed down the Dnjepr to an area with seven rapids that were very difficult to pass. After having passed three rapids, they came to the fourth and largest of the seven. Here they were in danger of being attacked by the Pechenegs, a local tribe which at the time was allied with the Byzantines; they thus unloaded their boats:

At this barrage all put into land prow foremost and those who are deputed to keep the watch with them get out, and off they go, these men, and keep vigilant watch for the Pechenegs. The remainder, taking up the goods which they have on board the monoxyla, conduct the slaves in their chains past by land, six miles, until they are through the barrage. Then, partly dragging their monoxyla, partly portaging them on their shoulders, they convey them to the far side of the barrage; and then, putting them on the river and loading up their baggage, they embark themselves, and again sail off in them.³³⁰



Fig. 31. Map of the main Russian river systems and settlements with Scandinavian Viking Age finds in the areas. Drawn by Gerd Engh Kielland

At the seventh rapid they reached a place where the river was wide as the Hippodrome in Constantinople. This was a place renowned for hiding Pecheneg tribes waiting to attack travellers.³³¹ After passing the seventh and last rapid, they reached St Gregory's Island situated in the middle of the river. By a huge oak they made offerings before continuing down the smoother waters to the Danube estuary. At last they could embark on the final section across the Black Sea and reach the Great City of Constantinople. "From the Ditzina they reach the district of Mesembria, and there at last their voyage, fraught with such travail and terror, such difficulty and danger, is at an end."³³²

De Administrando Imperio describes a long and dangerous journey. But it also claims that in the first half of the 10th century, commercial teams joined in organized business travels on fixed times of the year. The body of evidence provided by archaeology and historical sources suggests that silk trade from Constantinople to the Rus areas and from there to Scandinavia actually took place in the 9th century. Both the peace treaty of 911 and the establishment of tax posts in the Kiev region make it plausible that silk was already being traded along this route at this time.

To Central Asia on the River Volga

The Volga-Oka region connected the northern trade with the northern silk roads, which in turn were linked with the silk producing hubs in Central Asia and from there to China. The earliest traces of a Scandinavian presence in the Volga area dates to the early 9th century, located south-west of Rostov in a partly fortified settlement called Sarskoe Gorodishche. It has been interpreted as a centre for long distance exchange and crafts production, as well as a military dwelling place.

Artefacts of varied cultural origins have been found here. Among the foreign objects found were Scandinavian female jewellery and a dirham hoard with coins minted in the 830s.³³³

In the second part of the 9th century, at about the same time as the establishment of Rus strongholds on the shores of Dnjepr, three settlements with distinct Scandinavian cultural components were established near contemporary Yaroslavl, not far from the Volga;³³⁴ the settlements, called Timërevo, Petrovskoe and Mikhajilovskoe, have all been excavated. In Timërevo alone, over 50 houses have been revealed along with cemeteries. Excavations in Timerëvo revealed Scandinavian artefacts in 64 burials of both males and females from the 9th and 10th centuries. One of the female inhumation graves dating to the late 10th century contained fragments of silk of unknown weave and, in addition, oval brooches of Jan Petersen type 51. The silk fragments are interpreted as remnants of clothing.³³⁵ A huge dirham hoard consisting of 2685 coins has also been found in Timërevo, some of the coins with runes scratched into the surface. The most recent dirham in the hoard was minted in c. 864/865.³³⁶ In addition, silver rings and weight systems from this area also show similarities with finds from Scandinavia.³³⁷

Even though they were situated at a distance of about 10 km from the river, the settlements show a Scandinavian presence in the areas north of the trading hub of Bulghar, situated about 30 km downstream from Volga's confluence with the Kama River near present-day Kazak.

Bulghar provided a safe market in the 10th century where Rus and Viking merchants could sell their goods and buy silk and spices among other things from the Near East and Central Asia.³³⁸ It was in the town of Bulghar that Ibn Fadlan made his famous observation of a Viking funeral in the 10th century. Bulghar functioned as an eastern meeting point between north and east, a melting pot of different cultures and languages. As we have seen, they also minted their own special imitations of dirhams in the Viking Age. Ibn Fadlan was the assistant of a prominent general of the court of the caliph, Muhammad ibn Sulaiman. In the year AD 921–922, he made a journey from his hometown Baghdad via Bukhara to Bulghar. His mission was to instruct the people of Volga Bulghar in the Islam religion and to bring the king of the Bulghar money to build a fortress to protect the city from Khazar neighbors.³³⁹ His story is one of very few preserved written manuscripts from an eyewitness. On his journey to Bulghar, Ibn Fadlan travelled across the desert from Baghdad to Bukhara, one of the main production centres for Persian silk in the 9th and 10th centuries and the capital of Sogdiana. From Bukhara he went to Khwarazm by the Aral Sea, and from there, crossing many rivers, to the home of the Bulghars. He spent two months on the road from Khwarazm before he reached his final destination.³⁴⁰



Fig. 32. The route of Ibn Fadlan. Map by Gerd Engh Kielland

Ibn Fadlan seems to have had a certain understanding of differences and variations in luxury textiles. He brought with him many different textiles to be used as presents and tax on his journey. For an army commander of the Oghuz people, he presented

fifty dinars, and further three mitqals of musk, red leather, and two bolts of cloth from Merv, out of which we cut two jackets for him. Then came a pair of boots of red leather, a coat of brocade, and five coats of silk.³⁴¹

It was not only expensive fabrics from Central Asia that seem to have been transported along this road. If we are to believe in Ibn Fadlan, costly fabrics of Byzantine origin also found their way along the trade routes of the Volga at the beginning of the 10th century. In Bulghar, Ibn Fadlan observed Rus merchants camping by the river and even attended a funeral that is vividly described in his book. The chief who was about to be buried was laid on a couch covered with draperies and pillows made of Byzantine brocade.³⁴² Accidentally he also met a tailor from Baghdad making his living in the service of the king of the Bulgars, presumably bringing with him knowledge of fashion from his hometown. The history of Ibn Fadlan describes a large variety of luxury products made in Sogdiana as well as in Byzants, available in the trade hub by the Volga route.

Silk was produced in many locations in Central Asia during the 9th and 10th centuries. According to written sources and archaeological evidence, the loosely connected states of Sogdiana played a central role in both the production and distribution of silk in this area. To get a better grasp of the environment of the silk trade we will take a brief look at the political conditions for the merchants. The states of Sogdiana were centred on the city of Samarkand (Makaranda) and Bukhara in modern Uzbekistan and Tajikistan, both central hubs along the northern silk

route.

The inhabitants of Sogdiana probably dominated the caravan trade along the northern silk routes from the 5th to the 10th century.³⁴³ To do business and trade along the silk roads in this period must have required a good knowledge of local geography, updated political insight and ability to build alliances. Merchants from Sogdiana seem to have had the skills and opportunity to dominate commerce along the northern silk roads. In some places the name Sogdian was used synonymously with trade, and their language was a *lingua franca* on parts of the silk roads. Written sources suggest that Sogdian merchants delivered silverware from Persia, glass vessels and beads from Syria and Babylon, Baltic amber and Mediterranean coral, among other things, to markets in China.³⁴⁴

After Arab forces conquered Sogdiana at the beginning of the 8th century, the Sogdian ability to trade seems to have been seriously weakened. Lack of both Arab and Chinese sources from the mid-8th to mid-9th century makes it difficult to assess the trading networks to the north in this period. However, 10th century Arab documents based on earlier Sogdian sources describe trading networks. In this period Sogdiana was strongly connected to the Uighur Empire that spread along north Central Asia.³⁴⁵ A revolt against the Tang dynasty in the years 755–763, however, led to a massacre of Sogdian men, women and children.³⁴⁶ This incident must have affected the trade on the silk roads in the following years.

From the production centres in Sogdiana, the silk was transported in several directions. An important route to the north seems to have gone from Samarkand and Bukhara in Uzbekistan to the Caspian Sea and from there through the land of the Khazars up the River Volga to the kingdom of Bulghar in modern Tataristan.

In the areas north of the Caspian Sea, Jewish Khazar traders seem to have played an important role. Between the land off Rus and the silk producing areas in the south and east lay the land of the Kazhars, a semi-nomadic people. According to El-Masudi, the Kazhars traded in honey, wax and furs, commodities secured by the local population.³⁴⁷ Situated as they were, the Khazars could trade with the Caliphate, the Byzantine Empire and with the Rus to the north. Written sources reveal conflicts and political instability between the Khazars and both Rus and the Caliphate during the 9th and 10th centuries.³⁴⁸ The establishment of their fortress of Sarkel by the River Don in the mid-9th century was probably part of a Khazaro-Byzantine defence system. According to *The Chronicle*, Sarkel was taken by the Rus during an attack in AD 965.³⁴⁹

The political situation in Central Asia in the 8th–10th centuries was unstable and complex. Continuous warfare and conflicts must have threatened international commerce in this period. The Central Eurasian economy was undoubtedly in a depression from the late 8th century, but the extent of the recession in trade is not fully known. From 810 onwards there seems to have been a remarkable drop in the production of dirhams within the caliphate, explained by religious conflicts and internal disputes between the sons of Caliph Harun al-Rashid.³⁵⁰ According to Chinese written sources, the economic situation worsened even more during the late 830s due to climatic changes.³⁵¹ The precious silk from Central Asia must have been even less accessible for people in Scandinavia under such adverse conditions for trade and exchange. From this perspective, the silk strips from Viking graves are not only high status objects by virtue of their cost in terms of material, labour and know-how, but also because it must have been extremely dangerous to bring

goods safely through areas of war and economic collapse.

Scholars have debated whether Bulghar could be the easternmost meeting point for trading between Scandinavian and Persian merchants, or if the northerners actually went as far east as Baghdad to trade.³⁵² There is one early reference to Rus merchants travelling to the Caspian Sea and then to Baghdad in the 9th century.³⁵³ The same route is repeated by a slightly later source from about AD 900, but this time the final destination is not Baghdad but al-Muhammadiyah. Apart from Ibn Fadlan, many of the Islamic written sources show signs of being second- or third-hand descriptions rather than eye witness depictions.³⁵⁴ This presents a problem in interpreting these sources containing valuable information about culture, trade and, not least, textiles. But the majority of silk imported to Scandinavia probably changed hands several times on its journey from the place of production.

Passing the Caucasus

Several trading routes went through the lands of the Khazars, among them routes going between the Black Sea and the Caspian Sea. Several authors mention a trade route in the area dominated by Jewish merchants. In a long passage, Muhammad ibn Ishak writes that these routes were also used by the Slavs:

As for the Slavs, they take fox and beaver skins from the most distant Slav territory and come to the Roman Sea [the Black Sea] and the king of Byzantium imposes the duty of ten per cent on them. Then they go by sea to Samkush of the Jews. Then they return to the Slavs or else they go from the Slav Sea in the river which is called Nahr al-Sakaliba [the Don] until they come to Khalidj al-Khazar (...) where the king of the Khazars imposes a duty of ten per cent on them. Then they go to the sea of Khurasan [the Caspian Sea].

Finds of early dirham hoards indicate that the Caucasus area was an early link in the chain of exchange from the Caliphate to Northern and Eastern Europe until the early 9th century.³⁵⁵ On what has been called the Iranian–Georgian branch of the Silk Road, an area between the Black Sea and the Caspian Sea in the northern part of the Caucasus, an extraordinary archaeological site revealing numerous silks was discovered in 1921 near the upper part of the Bol'shaja Laba river in Ust-Labinsk. Archaeological excavations in Moščevaja *Balka* revealed that local tribes had buried their dead in a dry cave, clothed in samite silks made in Central Asia, Byzantium and China.³⁵⁶ Most of these burials have been dated to the 8th and 9th centuries. Many of the graves contained clothing that was exceptionally well preserved: men's kaftans and woman's dresses, headdresses and mantles, among other garments. Some garments have been made exclusively of silk, but most garments are made of linen fabrics and trimmed with strips of silk textiles. Several garments are made of a variety of different fabrics sewn together and made into one piece. There are examples of sleeves with strips of silk textiles of four or five different qualities sewn together. Narrow strips of silk are also used as trimming on sleeves, around the edges of caftans and as applications on the front of the garments. No care has been taken to make the patterns or colours match.

To pass through the Caucasus mountains on the Iranian–Georgian branch of the Silk Road in this area, tradesmen had to pay a tribute for guiding and support services for the horses and caravans. Most likely, they paid with the same goods as they transported for sale, among other things with strips of silk. Witness reports by

travellers from the 18th and 19th centuries show that the tax then was paid in linen according to a strict system based on textile units. Anna Ierusalimskaja has argued that the linen here played the same role as the silk did in medieval times, when strips of silk of various qualities functioned as tax and payment.³⁵⁷

Many textiles from Moščevaja Balka have been treated the same way as the strips of silk found in the Oseberg mound and in many of the other silk sites in Scandinavia. Margareta Nockert has argued that the heterogeneous combination of silks in the Oseberg find suggests that they are results of Viking raids to the west.³⁵⁸ I will, however, argue that the cutting and mixing of silk strips in Oseberg suggests that they have been sewn on to clothing, as in Moščevaja Balka, and not used as larger pieces for wrapping like many western European silks. That does not necessarily imply a similarity in fashions, but it certainly indicates that the silk strips from some of the Scandinavian graves could have been traded along the Silk Road. In a Scandinavian context it is also worth mentioning the large number of coins from Gotland stemming from the Caucasus.³⁵⁹

According to Ierusalimskaja, there are 132 catalogue numbers of samite (weft-faced compound twill) silks of Sogdian origin in the Hermitage collection from Moščevaja Balka, 36 of which have z-spun main warp and unspun weft.³⁶⁰ All except four of these³⁶¹ are made with a double main warp. A major part of the Sogdian silks from Moščevaja Balka can be characterized as Zandanyi II and Zandanyi II, dated by Ierusalimskaja to AD 750–850.³⁶² They show a great variety of patterns, mainly with vegetable and geometric motifs in medallions with pearls, interlacing and filled hearts, but more complicated motifs like astral symbols from the Zoroastrian circle are also visible. Many of them have patterns of double axes or ‘boar’s heads’ in various sizes and combinations but there are also syncretistic duck motifs.³⁶³

Compared to the majority of the silks found in Scandinavia, there are several similarities but also some differences. In contrast to Moščevaja Balka, all the silks from Oseberg have single main warps, giving them a less coarse outlook.³⁶⁴ In Oseberg, all except two fabrics (9 fragments) have a z-spun main warp and unspun weft,³⁶⁵ but unlike Moščevaja Balka, many fragments from Oseberg also have some z-spun weft threads among the majority of unspun weft threads.³⁶⁶ All the fabrics from Oseberg except fabric no. 14 have an s-twill diagonal.³⁶⁷ This corresponds with all the 36 numbers of weft-faced compound twill with z-spun main warp from Moščevaja Balka.³⁶⁸ If we compare the patterns, both the syncretistic duck motifs and double axes from Central Asia as well as hunter motifs on Mediterranean silks show similarities with Oseberg.³⁶⁹

Technically speaking, the most common silk found in Birka (S4) has much in common with the Sogdian silks from Moščevaja Balka. S4 is also a type of samite silk with z-spun main warps and weft with no traces of spinning. Unlike the Oseberg silk fragments it has a double main warp like most of the Sogdian silks from Moščevaja Balka. The S4 group contains several different degrees of coarseness in the weave. Even though Geijer saw traces of a pattern on some of the Birka silks, most patterns have faded, which makes it even more difficult to compare them with textiles from other sites. A coarser and more uneven woven quality of similar samite silk was separated by Geijer in a singular group called S5³⁷⁰ with patterns showing similarities with some of the Oseberg fragments.³⁷¹



Fig. 33. Sleeve from Moščevaja Balka with different kinds of silk. State Hermitage Museum, St Petersburg. Photo: Marianne Vedeler



Fig. 34. Kaftan made of samite silk with senmurv motif found at Moščevaja Balka. Now in the State Hermitage Museum in St Petersburg. Photo: Marianne Vedeler

Trade Relations Between the Caliphate and Byzantium

The complex trade relations between the main production areas of the Caliphates and Byzantium in this period further distort the interpretation of trading routes and distribution of silk. In spite of strong political rivalry and competition in trade and in silk production, both preserved silk fabrics and written sources show a strong interaction relating to pattern exchange and technology as well as trading and gift exchange between Byzantine and Persian areas. Potentially, this means that Central Asian silk could have been brought to Scandinavia via Constantinople and, maybe less plausibly, that silk produced in Byzantine areas could have come by way of Muslim trading centres. It is interesting to note that a trade regulation in Constantinople prohibited merchants from Bulgar from buying Persian silk of higher value when they were visiting the town.³⁷² According to the *Book of Eparch*, silk fabrics and clothing from Baghdad were among goods brought by Syrian merchants to Constantinople in the early 10th century. In addition, Islamic fashions in the form of garments 'tailored in the Saracen style' were, according to *De Ceremoniis*, made in the Byzantine capital.³⁷³

If Scandinavian merchants really reached as far as Baghdad, they encountered a cosmopolitan city of trade. A writer of the late 9th century describes the thriving trade in the city like this: "There are not a people from any country but has a quarter in it, a place for the exchange of their produce, and a special district of their own. That which is not to be found in any other town of the world is brought together here."³⁷⁴

Silk trade between the Caliphate and the Byzantine Empire also led to diffusion and imitation of fashion. In a manuscript written in the 8th or 9th century, the author, from Baghdad, makes jokes about the people of Isfahan for not having a certain type of Byzantine velvet fabric (*katifa*).³⁷⁵ This indicates that not only physical products but also ideas and fashion were exchanged between the rivals. This makes it extremely difficult to know the specific trade routes the different types of silks came through and where they actually were made.

310 Davidson 1976; Duczko 2004; Callmer 2007.

311 Hårdh 2007, 138.

312 This is an observation from 2009, when I was briefly able to study the Ladoga Collection of textiles in the State Hermitage Museum, St Petersburg. Many thanks to Kirill A. Mikhailov at the Dept of Archaeology in Eastern Europe and Siberia for help and support on this matter.

313 Coll. no. 1872 – Museum no. 2698/369, the State Hermitage Museum, St Petersburg.

314 Personal comment from Kirill A. Mikhailov, the State Hermitage Museum, St Petersburg.

315 Zubkova, Orfinskaya and Mikhailov 2009.

316 Type I with double inner warp, z-spun and s-spun warps and unspun weft, Type II with double inner warp and z-spun warps and unspun weft, Type II, single inner warp, z-spun warps and unspun weft (Zubkova, Orfinskaya and Mikhailov 2009, 293).

317 Zubkova, Orfinskaya and Mikhailov 2009, 295.

318 Ierusalimskaja 1993, 239; Muthesius 1997, 69.

319 C55000/377, fabric no. 12. See Chapter 1.

320 Muthesius 1997, 69–72.

321 Duckzko 2004, 155–161.

322 Grave Dn 4 (Avdusin and Puskina 1988, 26).

323 The brooches are of Jan Petersen's type 51b.

324 Avdusin and Puskina 1988, 26–29.

325 Callmer 2007, 255–266.

326 Larsson 2007, 231.

- 327 Cross and Sherbowitz-Wetzor 1953, 64–65.
- 328 Cross and Sherbowitz-Wetzor 1953, 4.
- 329 Davidson 1976, 80.
- 330 Stephenson translated excerpts DAI.
- 331 Davidson 1976, 85.
- 332 Stephenson translated excerpts DAI.
- 333 Duczko 2004, 190.
- 334 Callmer 2007, 260.
- 335 Grave no. 394, Duczko 2004, 197.
- 336 Duczko 2004, 191.
- 337 Hårdh 2007, 135–147.
- 338 Noonan 1992, 237.
- 339 Frye 2005, 8–9.
- 340 Frye 2005, 15–16.
- 341 Frye 2005, 40.
- 342 Frye 2005, 67.
- 343 Wood 2002, 65; de la Vaissiere 2004.
- 344 Wood 2002, 65–67.
- 345 de la Vaissiere 2004.
- 346 Beckwith 2009, 157.
- 347 Kaplan 1954, 2.
- 348 Golden 1990.
- 349 Golden 1990, 264–265.
- 350 Noonan 1986, 154–155.
- 351 Beckwith 2009, 157–158.
- 352 Davidson 1976, 95.
- 353 Ibn Kurdadbeh c. 825–911 in Serjeant 1972, 221.
- 354 Noonan 1992, 237.
- 355 Kilger 2007, 211–212.
- 356 Ierusalimskaja 1996, 17–20.
- 357 Ierusalimskaja 1996, 120–122.
- 358 Nockert 2006, 298.
- 359 Kilger 2007, 244.
- 360 Nine numbers where the spinning is uncertain are not included (Ierusalimskaja 1996, 252–287.
- 361 Ierusalimskaja 1996, cat. nos 140, 141, 149, 151 have single main warp.
- 362 Ierusalimskaja 1996, 116; 1998, 237, for explanation of Zandaniyi see Chapter 6.
- 363 Ierusalimskaja 1996, cat. nos 86, 87, 92–94, 100–106, 108–111, 113, 115–117, 121, 123–124.
- 364 Nockert 2006, 279.
- 365 These are Nockert's fabrics 14–15. See separate discussion of these fabrics in Chapter 1.
- 366 These are Nockert's fabrics 1–7. See separate discussion of these fabrics in Chapter 1.
- 367 Nockert 2006, 283.
- 368 Ierusalimskaja 1996, 252–287, cat. nos 47, 48, 66, 76, 82, 82, 86, 87, 92–95, 100–106, 108–111, 113, 115–117, 121, 123–125, 136, 137, 140–141, 149, 151.
- 369 See Chapter 1 for further details about the patterns.
- 370 Found in one grave dated to the 10th century, No. 944, together with fragments of S3, S4, bands, possament and embroidery (Geijer 1938, 178).
- 371 Geijer 1938, 59.
- 372 Jacoby 2004, 219.
- 373 Jacoby 2004, 219–220.
- 374 Ya'kubi translated in Serjeant 1972, 27.
- 375 Serjeant 1972, 212.

PERSIAN AND EARLY ISLAMIC SILK PRODUCTION

The regions of Central and Western Asia have a long history involving silk production. In a complex and chaotic political and religious situation, patterns, technology and raw materials were mixed, blended and exchanged across Persian and Byzantine areas of domain. In the 9th and 10th centuries, Islam moved to the north and west, influencing both Persian and Byzantine areas.

The Sassanian dynasty, with its centre of gravity in Iran (AD 226–651), produced a remarkable variety of precious silk products through its silk factories in Fars, Susa and other parts of the empire. In its last phase, Sassanian silk production also managed to influence the silk fashions of China.³⁷⁶ The same motifs and designs visible in silk fabrics preserved in Europe, Scandinavia and Egypt can be seen on wall paintings and silver art from Sassanian Iran. The motifs from Tak-i-bostan are well known.³⁷⁷ After the fall of the Sassanian dynasty in the mid-7th century, silk production continued as before in many parts of the old empire, according to written sources. Unfortunately, remarkably few silk fabrics have been found in archaeological contexts from the 9th and 10th century in this large area of production.³⁷⁸

The Abbasside Caliphate established its main centre in Baghdad in AD 762 (144 H). Its influence spread gradually to the north and west. In its earliest phase, in the 8th century, the Caliphate covered the area from north Ifriqiya to the banks of the Indus and to the deserts of Central Asia.³⁷⁹ However, very few new ideas or changes in textile technology and design seem to have developed in the new regime. Both old Sassanian palace factories and the system of distribution were probably adopted without major changes.³⁸⁰ The old Sassanian designs and means of production continued to be used, and textiles with old designs sold to foreign lands. Some of these ended up in Scandinavian Viking graves.

Tiraz

The Umayyad (661–750) and Abbasside (750–1258) dynasties organized a large system of palace textile factories. Originally, the Persian word *tiraz* (in Persian

زارت or زارط) probably meant embroidery, referring to bands with embroidered writing attached to a garment. Names and signs connected to the Caliph, sometimes also a praise of Allah, were embroidered or woven into a fabric and used as decorations on clothing and accessories. The word Tiraz later came to refer to the palace factories making textiles and clothing for the court, organized in

an institutionalized system of production and distribution all over the Caliphate.³⁸¹

The Abbasside dynasty seems to have had a huge need of textiles for clothing and for interior decoration. Written sources show that textiles often functioned as gifts of honour given by the Caliph on various occasions. The officers and senior state officials of the Caliphate expected an annual gift of clothing and textiles. One of many accounts of textiles used as gifts is given by Rashid al-Din Fazl Allah who describes the glorious gifts of al-Qadir, Caliph in the Abbasid Empire from AD 991 to 1031 (381–422 H):

The Caliph al-Qadir bi-'llah sent the sultan a precious robe of honor, the likes of which no one had ever seen before and bestowed on him the honorific 'Right-hand of the State and Trustee of the Nations'. The sultan put on that honor which had accrued to him from the Majesty of the Prophecy and the endowment of the caliphate and ascended the throne of the sultanate. The amirs of Khurasan and the local potentates lined up in audience around him and honored him. The sultan rewarded each one of them with kindness, giving them valuable robes of honor and innumerable gifts.³⁸²

The quality and design of the gift varied according to the receiver's social status and the Caliph's desire to reward. Therefore, textiles of many qualities and types were produced in different areas in the Empire. The large demand for textiles of scaled qualities fit for the court was controlled and distributed through the institutionalized system called *tiraz*. The exact time of birth of the *tiraz* system is not known, but there is a strong possibility that the system developed from a special tax system used by the Sassanian kings. As part of the land rent, every province had to send a certain amount of local quality textile products to the king.³⁸³

The *History of the Kings of Persia*, written in the early 11th century, tells us that "Balâsh made the inhabitants of each province supply their special products, consisting of *objets de vertu*, and clothing, etc. He ordered the cost of them to be reckoned as part of the land tax and imposts."³⁸⁴ Serjeant argues that a large production system in *tiraz* fabrics spread across the middle and eastern part of the Islamic world, developed on the basis of the system established under the Sassanian period.

Special products were equipped with inscriptions or special royal signs, which were embroidered or woven into the textile. The former glory of the royal *tiraz*-bands was described by Ibn Khaldûn in the 14th century:

One of the splendors of power and sovereignty, and one of the customs of many dynasties was to inscribe their names or certain signs, which they had adopted specially for themselves, in the borders of garments designed for their wear, made of silk or brocade or ibrisk silk. The writing of the inscription was to be seen in the weave of the warp and woof of the cloth itself, either in thread of gold or colored thread without gold, (...). Thus, the royal robes are bordered with a *tiraz*. It is an emblem of dignity reserved for the sovereign, for those whom he wishes to honor by authorizing them to make use of it, and for those whom he invests with one of the responsible posts of government.³⁸⁵

Unfortunately, no *tiraz*-bands of the type described have been found in Scandinavia.

A great variety of silk products from different *tiraz* areas are described by early writers. Not only the *tiraz*-bands, but fabrics of different qualities and patterns were seen as specialties of certain towns or districts and produced in *tiraz*

factories. Very few of these textiles are described in such detail that it is possible to identify fabrics preserved to the present time by name. The great diversity of type designations, however, shows that there must have been considerable variations in patterns and fabric qualities even within the individual tiraz area.

The political potential and importance of silk products were clearly recognized, and also recorded by early geographers and historians of the Islamic world. The production and distribution of silk was strictly controlled. The historian Makrizi reports that the palace in Cairo was transformed into silk and brocade workshops under the Fatimid's in the 10th century. The direction of these workshops was always entrusted to persons of rank in the Kingdom.³⁸⁶

Even though the tiraz system was designed to meet official needs for textiles and clothing, part of the production in the royal factories was probably also sold to private consumers. The geographer Ibn Hawqal stated, in the late 10th century, that the royal factories in Fayyum in Egypt were run by officials but that merchants from many countries came there to buy precious curtains at very high prices.³⁸⁷

Very few of the rich variety of royal silk fabrics are known to us by name. Some names have, however, survived through written poems. Some of the most celebrated fabrics of royal silk were called *Parand* and *Parniyān*. These were signified by their characteristic pearl-roundels symbolizing the stars of heaven, framing beasts and birds as well as formal designs. Onsorī, a poet in the 5/11th century, praises the royal Parand silk like this:

It is a banner methinks with glazed patterns
It is a Parand methinks with plants of pearls
It shows the stars of the Byzantine brocade
And of Indian steel, the watering with bird-like motifs³⁸⁸

The beads or round circles forming the roundels so characteristic of many of the early medieval silks that are preserved today, are often compared with coins by early Arabic poets. Lame'i Gorgani, another great poet of the middle of the 5/11th century, put it like this:

From the surface of the arched sky, glittering Canopus and Jupiter Have shed dinars
and drachmas as on a parand from Shūshtar³⁸⁹

Shūshtar is a city in the south-western province of Khuzestan, in present-day Iran. But Parand and Parniyān fabrics were probably produced in several areas in Central and Western Asia, and the names may have been collective terms for several fabric qualities. The source of the motifs found on many of the textiles with pearl roundels are Sassanian, and the clearest examples of art showing Persian pearl roundels with birds, beasts and other patterns described can be found in Central Asia, especially in Sogdiana.³⁹⁰ But the Sassanian motifs spread rapidly to a number of production centres in the years after the fall of the empire, and it is therefore extremely difficult to connect specific textiles to their original name or place of production.³⁹¹

On the basis of a number of written sources, Melikian-Chirvani suggests that both Parand and Parniyān fabrics were probably also produced in Susa, Tib and in the city of Baghdad as well as in the areas of Fars and Tabarestan. The written sources seem to suggest that the main difference between Parand and Parniyān was that the Parand were decorated with only one colour in combination with

white while *parniyān* was made in many colours.³⁹² There is no way we can find out exactly what types of textiles these names are referring to but it is a fact that most of the preserved silk textiles with the described motifs are made in samite or weft-faced compound twill. It makes one wonder if the difference between *Parand* and *Parniyān* could refer to differences in technology and thereby visual appearance in the fabrics. There are many different ways to produce samite, resulting in visual variety. One example is the use of so called *latté*. The order of colour of weft threads can be changed and thereby more colours could be used in the pattern. If used in this way, horizontal striped details called *latté* appear in the pattern.³⁹³ By using two colours in the weft, the pattern appears with opposite colours on the right side and reverse of the fabric. If three or more colours are used, the reverse side appears blurry because the colours not used on the right side are mixed on the reverse.

Private Production of Silk Fabrics

It is reasonable to assume that such a system as the *tiraz* must have added constraints for the production of textiles for private sale. The royal system probably stimulated specialization as well as diffusion of fashion, new techniques and design for the private market. The specialities for each region, the patterns and fabric qualities considered to be characteristic for a *tiraz* area, would likely serve as guidelines for the manufacture of textiles for sale on the open market as well. We may see an example in some of the silk fabrics found in Scandinavian graves. The fabric with birds and axe-clover motifs from Oseberg resembles the description of *Parniyān*, but the uneven quality and several weaving mistakes make it unlikely that these were made in a royal *tiraz* factory.³⁹⁴ However, it is a strong possibility that they were made in the same areas, influenced by creators of royal fashion at the beginning of the 9th century when the Oseberg silks were probably made. There are, however, several indications of a large private textile industry which exceeded the royal factories in both production and employment in the 10th century. The court budget of Caliph al-Mu'tadid, who ruled from AD 892–902, gives us detailed information about artisans in textile related professions employed in the palace workshop in Baghdad, such as tailors, fullers, embroiderers and makers of trimming, but weavers are not mentioned. This has led the historian Jessica Dijkman to conclude that most of the fabrics were made by private producers or imported from royal factories in other districts for finishing in Baghdad. On the basis of preserved tax data indicating an annual production of silk and cotton worth about 600,000 dinar, Dijkman has calculated that at least 4000 people were employed in silk and cotton manufacturing in Baghdad alone at the end of the 10th century.³⁹⁵ If this was the case, one can conclude that a huge private silk industry flourished in the caliphate during the 9th and 10th century.

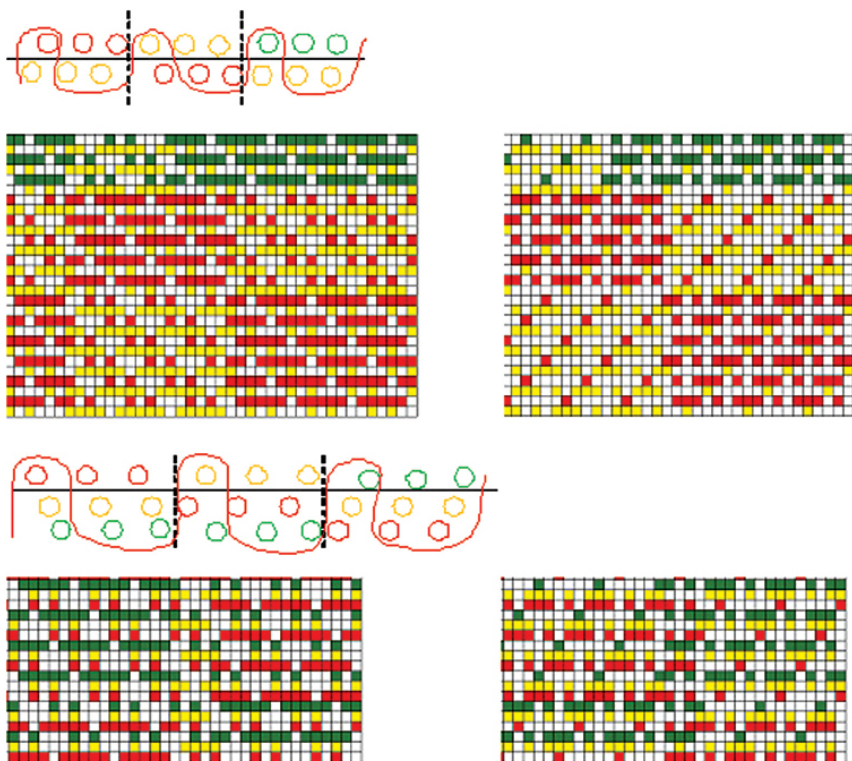


Fig. 35. Examples of samite varieties. Upper part: 2/1 Weft-faced compound twill (samite) with two weft threads and colour change in weft 2 (lattè). Fabric No. 3 from Oseberg, Norway. Below: 2/1 Weft-faced compound twill (samite) with three weft threads. Fabric No. 15 from Oseberg, Norway. Right side of fabrics to the left, reverse side to the right. Drawn by Martin Ciszuk

The tiraz-bands were sewn on to the borders of clothing, sometimes in rows of two or three bands around the neck and wrists and onto sleeves and on headdresses. Illuminations depicting dresses adorned with tiraz-bands on medieval Arabic manuscripts illustrate that this became high fashion in the Islamic world.³⁹⁶ Several preserved silk textiles with Arab inscriptions have been found in Moščevaja Balka as well as in early medieval churches in central Europe. Some of these could be copies of royal tiraz-bands made in private factories. An inscription on a silk fabric from the Cathedral of Merseburg reveals that the copyist had no proper knowledge of either the Koran or the Arab language that he was obviously trying to copy.³⁹⁷

As we have just seen, makers of trimming is one of the professions mentioned in the late 9th century court budget of Caliph al-Mu'tadid. Probably not only tiraz-bands with inscriptions, but also other forms of silk trimmings were made and used as decoration on clothing. This is interesting to see in relation to the fashion of silk trimming that is visible in the upper social strata in Scandinavia, in Russian graves with 'Scandinavian' artefacts, in nomadic societies along the silk roads such as in Moščevaja Balka and in the fashions of the Byzantine court.³⁹⁸ The use of

various forms of trimmings made of valuable fabrics seems to have been a widespread trend, in most places available only for the wealthy.

Silk Producing Centres and Trade in Written Sources

As we have seen, there is a large pool of early medieval written sources about silk production and trade. In the early days of Islam there was a wave of Arab geographers and explorers, who described landscapes and people, production and trade. These are interesting and valuable sources that cannot be bypassed. But there are a number of source-critical questions to be addressed when using these sources. First, many of these geographers use their predecessors as sources for their own story, but they rarely refer to each other. Instead, they often claim themselves to be a first-hand source of the observations. Consequently, many of the sources represent second-hand information that, in some cases, have been distorted.³⁹⁹ It is therefore difficult to know to what degree these sources are trustworthy. But they are still an important supplement to the understanding of early silk production in the area, and I have decided to take a closer look at a number of them, sorted geographically.

East of the Caspian Sea

The large area of Transoxiana, including the province of Sogdiana covered, together with Khorasm, most of the silk producing area east of the Caspian Sea. In the 9th and 10th centuries, Transoxiana was known for its large production of textiles. Ibn Hawqal, a wellknown geographer of the 10th century, put it like this: “In Transoxiana they make many female dresses, because fabrics of wool and silk and cotton are of very good quality. But fabrics of linen can be found in especially large quantities.”⁴⁰⁰



Fig. 36. Map of silk production centres in the north-eastern Persian area. Map drawn by Gerd Engh Kielland

Ibn Fadlan passed the city of Merv on his way to Bulghar, and as we have heard, he brought with him precious fabrics made in this city.⁴⁰¹ Ibn Hawqal describes Merv as an ancient place situated on a sandy and flat landscape with houses of unfired brick. However, he also praises the cleanliness, the beautiful vineyards and the canals of the city. According to Hawqal, silk fabrics and raw silk exported all over the world were produced in this city in the 10th century.⁴⁰²

Sogdiana

Sogdiana or the Old Persian *Suguda*, was a province of the Achaemenid Persian Empire until the early 8th century. Sogdiana included territories around Samarkand and Bukhara in modern Uzbekistan and in the Sughd Province of modern Tajikistan. The Sogdian states were clustered around Samarkand, a central city on the northern Silk Road.⁴⁰³

Central Asia was a region with a blend of religions such as Manichaeism, Nestorian Christianity and Zoroastrianism, apart from Buddhism.⁴⁰⁴ Some of the silk textiles made in the region reflect myths and symbols referring directly to Zoroastrianism.⁴⁰⁵ Some of the motifs on silk fabrics from Oseberg, such as the axe-clover pattern mentioned in Chapter 1, resemble the Zoroastrian double-axe symbols.

In the Sogdian area of modern-day Uzbekistan and Tajikistan, both written sources and preserved art suggest that silk with Sassanian motifs was produced there in the 8th and 9th centuries AD.

There seems to have been a tiraz fabric in the Sogdian capital of Bukhara under the Abbasside dynasty, situated near the great Mosque. At this time, Sogdiana was one of the Caliphate's easternmost provinces.⁴⁰⁶ Several early geographers like

Istakhri, Ibn Hawqal, Baladhuri and Yakut refer to the textile production of Sogdiana. If we are to judge/estimate production on the basis of these sources, it seems that the area was particularly well known for their cotton products, but they also produced several qualities of silk. Yakut describes the Sogdian textile production like this: "As regards to clothing, there are unequaled cotton garments which are exported to all regions. They have kazz silk, wool, and fur in abundance, as well as ibrism silk of Khudjand, there being no better ibrism to be found".⁴⁰⁷

Narshakihi, writing for his Samanid master in the years AD 943–944, described the tiraz factory in Bokhara as declining. In his time, fabrics from Zandana became much more popular. These fabrics were, according to Narshakihi, made in red, white and green colours, and used by both kings and noblemen. They were also exported to lands outside Sogdiana, like Syria, Egypt and the Byzantine cities; they were originally produced in a small village outside Bukhara city, but as time passed the name came to be used for fabrics produced in a larger area around Bukhara.⁴⁰⁸

(...) it is called zandanidjī, which is to say muslin (kirbas) from the village of Zandana, which is both good and plentiful, but many of the villages of Bokhara weave better cloth, and they call it zandanidjī because it first made its appearance in that town. This cloth is exported to all the provinces such as Iraq, Fars, Kerman, and Hindustan. All the nobles and kings make robes of it and buy its brocade at a high price.⁴⁰⁹

According to this text, the Zandanidji fabrics were made of muslin, a kind of cotton, and this is not the only example where the Zandanidji fabrics are associated with cotton rather than silk.⁴¹⁰ However, several scholars have argued that a specific kind of preserved silk fabric came from the same area. Dorothy Shepherd suggested in 1959 that some of the silk samite fabrics in European church collections could be connected to the Zandanidjitextiles of the early medieval authors. The original reason for attributing these textiles to Sogdia was the fact that a Sogdian inscription was found on one of them, a fabric now in the church of Huy in Belgium. The inscription contains the word *Zandanechī*, known as *Zandanijī* in written sources.⁴¹¹

Shepherd has later attributed several groups of silk textiles to Sogdia, in relation to the Zandanidji-textiles. She calls them a 'Central Asian school of silk weaving'. The Zandanidji silks are grouped in three distinctive groups, I, II and II, and include a large number of textiles both in European medieval churches and from excavations in Russia. Shepherd's criteria for grouping the textiles are technical, but there is also a correspondence in style and colour in her groups. Group I of the Zandanidji silks is characterized by the presence of triple poil-z main warps with thick yarns. The fabric is heavy and compact.⁴¹² Group II is distinguished by main warps without spinning, very occasionally lightly z-spun and twisted. This group has usually a double main warp. Group II is mainly defined on the basis of pattern and style, the seven textiles in this group decorated with hunting scenes.⁴¹³ However, even though the motifs are to be found in Sogdian art, several art historians have argued that the style of the silk textiles differs from the many mural paintings and decorative art found in Sogdiana, although they do agree with Shepherd that the so-called Zandanidji silks were produced in the eastern provinces of the Abbasid Caliphate and perhaps in the part of Central Asia that was independent from the Arabs.⁴¹⁴

Two of the silk fabrics found in the Oseberg mound meet the same technical

criteria that characterize the Zandanidji group II fabrics as described by Shepherd. Unfortunately, the colours of these silks found in Oseberg have faded and it is no longer possible to describe the patterns.⁴¹⁵

South of the Caspian Sea and South-east Iran

Tabaristan seems to have been an area where they produced a lot of good quality silk that was exported to both Muslim and non-Muslim countries. According to Ibn Hawqal, there was no better silk to be found anywhere than the silk from Tabaristan; but then again, he says, originally this silk came from Djurdjan (Gorgan).⁴¹⁶



Fig. 37. Tomb of the Samanids, early 10th century, built for the Samanid family who ruled Transoxiana for the Abbasid dynasty. Photo: Wikimedia commons

As we already have heard, according to Ibn Khurdādbih, the Rus merchants sometimes made their way to Djurdjan or Gorgan to sell their furs, skins and swords. In the description of trade routes of the Rus, Djurdjan is referred to as a larger area on the south-east side of the Caspian Sea. As Ibn Khurdādbih puts it: “... They journey to the sea of Djurdjan, disembarking on whichever part of its coast they wish, the coast of this sea being five hundred parasangs. Sometimes they take their wares from Djurdjan by camel-transport to Baghdad.”⁴¹⁷ If we are to trust this description, it seems as though the area of Djurdjan regularly received visitors from the north. There is certainly a theoretical possibility that silk fabrics were exported from this area to Scandinavia in the Viking Age.

The city of Djurdjan lay on the coast at the south-eastern end of the Caspian Sea. This was not only a market place for distribution of textiles, but larger quantities of various silk textiles were, according to medieval sources, also produced in this city. Silk workers of Djurdjan produced both raw silk and manufactured silk clothing ready for sale on the open market. A variety of silk qualities are mentioned. First and foremost the city seems to have been famous for its excellent ibrisim silk. This is mentioned by several writers.⁴¹⁸ Unfortunately, we do not know exactly what they meant by ibrisim silk. However, textile workers in Djurdjan also produced black silk textiles, silk veils and brocade and raw silk.⁴¹⁹

Djurdjan and the nearby city of Astarabad, which also produced silk textiles, shared a port by the Caspian Sea where textiles were brought for export to Rayy, a central crossroad on the 'Silk Road'.⁴²⁰ This was one of the places where Ibn Fadlan rested on his long journey to Bulghar. The importance of Rayy as a commercial centre is emphasized by several writers. Ibn al-fakih describes this city as an important meeting point between east and west:

Rayy has a good climate, splendid buildings; it is an entry for merchants and a resort of the opulent. It is a bridge of the world, the highway of the earth, and the intermediary for Khurasan, Djurdjan, Iraq and Tabaristan. To it come the wares of Armenia, Azerbaijan, Khurasan, the Khazars and the land of Burdjan, because the sea-traders travel from East to West, and from East to East, bearing brocade and fine khazz-silk from Firandja to al-Farma.⁴²¹

Excavations conducted in 1925 in tombs in the vicinity of Rayy revealed a number of textiles, including plain and striped silks. Unfortunately, the dating, provenience and context of these textiles are incompletely documented.⁴²²

The region of Khurasan also produced silk. Ibn Hawqal reported, in the last part of the 10th century, that a large quantity of thread as well as a fabric made of a combination of silk and cotton was produced in an area called Kohestan, near the desert of Fars. These seem to have been the area's main products, together with a special type of pottery.⁴²³

The Fars province in modern Iran is mentioned as an important production centre for textiles. In the middle of the 10th century, al-Istakhri wrote about royal tiraz factories in Fasa, Siniz, Djannaba and Tawwadj.⁴²⁴ Fasa seems to have been most famous for its beautiful curtains made of silk and wool and also for a type of "costly silk curtains that cost approximately 100 dinars a piece", a large amount of money. They also produced and exported colourful garments inter laced with a

تفبرز مگنر دن چ زارط

thread of gold (in Persian: تفبرز مگنر دن چ زارط) and these garments were unique, according to Ibn Hawqal.⁴²⁵

Baghdad

Further to the north-west, in modern Iraq, the Abbasside Caliphate had its main centre in the city of Baghdad, famous for its textiles. Some written sources giving information about silk production in the capital in the early medieval period are preserved, indicating relatively large-scale production and sale of silk fabrics to a wider area. The city probably also had its own tiraz factory, but this is curiously not mentioned in the written sources until the 12th century.⁴²⁶ The factories of Baghdad probably produced a great variety of fabrics. A writer describes a black-

and-white striped silk fabric resembling the skin of a zebra that was made in the Attabi quarter in the late 11th century.⁴²⁷ As we have heard, Ibn Kurdadbeh claimed that some Rus merchants travelled to Baghdad in the 9th century, but the veracity of the statement is uncertain.⁴²⁸



Fig. 38. Map of Persian and early Islamic silk production centres in the south-western region. Map drawn by Gerd Engh Kielland

Between the Caspian and the Black Sea

The area between the Black Sea and the Caspian Sea seems to have had a special position in silk production in the early Middle Ages. Poised between the Christian west and the growing Islamic east, the area of Armenia and Azerbaijan came to hold a special position as a bridge of fashion and design between east and west.⁴²⁹ Politically, the area shifted its alliances from Byzantine to the Caliphates and back again. The area held a large population of Christians.

Armenia and Azerbaijan seem to have been famous for their carpets. But they also produced silk textiles. Djahiz states, in the 9th century, that striped silk and Sassanian or royal brocade as well as Byzantine-styled products were made in Armenia. They also made khazz-silk and buzyun-silk.⁴³⁰ Bardhaa, the chief city of the Islamic province of Arran until the tenth century, is described by Arab geographers as “a large town, very pleasant. (...) The town produces much silk, good mules, madder, chestnuts and caraway.”⁴³¹ They also bred silk worms, exporting raw silk to Fairs and Khuzistan.⁴³²

Further to the west, on the south-eastern shore of the Black Sea, there was a meeting place for merchants and travellers from the Byzantine Empire and the growing Muslim Empire. Today’s Trabzon in Turkey bore the name of Trebizond in the 9th and 10th centuries. A trade route passing Trebizond made the city important as a transit market for silk. Arab authors note that Trebizond was used

by Muslim merchants in the 8th–10th centuries to buy Byzantine silk for the eastern Muslim markets.⁴³³



Fig. 39. Chieftain's cap of Sogdian silk, 8th–9th century, from Moščevoj Balka, now at The State

North of Armenia, in modern Georgia and south-east Russia, there are traces of silk production as well as distribution of silk from several areas. The extraordinary finds of beautiful silk garments in Moščevaja Balka have been described in previous chapters. Moščevaja Balka is situated in Ust-Labinsk, near the border with Georgia. Late medieval sources report that silk was not only traded but also produced in this area. According to Yakut, ibrism silk was exported from Caucasia, and Mustawfi reports that kermes insects that were used to produce the precious red dyestuff were plentiful in Georgia.⁴³⁴

Egypt and Syria

There is reason to believe that both Egyptian and Syrian silk fabrics were traded to other parts of the Muslim Empire as well as to Byzants and further west. However, we do not know if silk fabrics from this area ever reached Scandinavia in the 9th and 10th centuries.

A number of well-preserved silk fabrics have been found in – or attributed to – Egypt and Syria. Among these are the so called Achmim-silks, named on the basis of grave finds excavated in Achmim in Egypt. These are two-coloured samite silks. The silk fabrics found in Achmim are spread over a number of western European museums and the contexts are, in several cases, poorly documented.⁴³⁵ In the Egyptian town of El-Sheikh Ibada, once called Antinoë, a number of grave finds revealed multi-coloured samite silk; some of them with patterns resembling both Sassanian motifs like the earlier described ducks⁴³⁶ as well as mask motifs similar to Byzantine patterns. Sadly, the contexts are inadequately described and dated. It has been debated whether the silks from Achmim and Antinoë were produced locally or were imported.⁴³⁷ Either way, we cannot exclude the possibility that some of the multi-coloured samite silks found in Scandinavia came from the same production area as the Antinoë silks.

In *Hudūd al-'Ālam*, the Persian geography entitled *The Regions of the World*, Egypt is described as the wealthiest Muslim country, with numerous towns, and extremely favoured by nature. The author describes a variety of textiles produced there, specially mentioning the Egyptian wool-textiles and robes but also handkerchiefs of khazz silk.⁴³⁸



Fig. 40. Samite silk with duck motive, No. 8, Musee de Sens. The silk was found in the shrine of St Paule, which contained mostly relics given by Charlemagne (Champion 1911, 274–275). Photo: Marianne Vedeler

Syria, with its location near the Byzantine border, enjoyed a privileged position in trade relations with the Empire. Syrian merchants were allowed to stay and trade inside the town walls of Constantinople, and during the 10th–12th centuries they had their own quarters in the city.⁴³⁹ The *Liber Pontificalis*, a book of biographies of popes until the 15th century, shows that churches in Rome received textiles made in Syria during the 8th and 9th centuries.⁴⁴⁰ The textiles probably had Christian motifs, but the description in the text is not elaborated enough to identify preserved textiles in European churches. Several textile producing cities in the area are mentioned by name by the early Arab geographers. Idrisi stated that excellent garments of a single colour of the same type as manufactured in Dastuwa and Isfahan were also made in Antioch. It is difficult to know on the basis of his text what kind of fabrics these were and what kind of material they were made of,

but it underlines that fashion and design probably spread and mixed over a large area. Similar formulations are used to describe the city of Damascus. According to the writer, various kinds of silk and brocade garments were made in this city. He says that:

the factories for all of those are marvelous, and their brocade resembles the finest brocade of Rum (Byzantium), approximating to the garments of the Dastuwa and vying with the manufactures of Isfahan, surpassing the manufactures of the tiraz factories of Nishapur consisting of silken garments of one colour (...).⁴⁴¹

The city of Aleppo further east is mentioned several times, in the high Middle Ages for its textile market specializing in imported merchandise.⁴⁴²

Persian and early Islamic silk production included a large variety of raw silk, silk fabrics and clothing in many qualities. The products were produced both within the royal factories and in private workshops. Written sources emphasize that these products were traded both locally and to foreign markets, and the preserved silk fabrics from Scandinavian Viking graves show that some of them even reached the high status stratum in the cold northern countries.

Attitudes Towards Silk in Persian and Early Islamic Communities

During pre-Islamic times Central Asia was a region with a blend of religions such as Manichaeism, Nestorian Christianity, and Zoroastrianism apart from Buddhism.⁴⁴³ This mix of religious beliefs and cultures were also influencing the textile production. Several early silk patterns survived after the coming of Islam. Mirror-image symmetry with astral symbols originating in Zoroastrian religion are examples of patterns used on silk products in Central Asia long after Islam was introduced to the region. These and other popular patterns developed in Sassanian silk producing centers probably spread over large areas of production. It is difficult to say whether the meaning of these symbols transformed or if they simply continued to be used as meaningless decorative patterns in the production areas. Further research needs to be done on this matter.

As we have seen, production and trade of silk was widespread in the early Islamic world. Early Islamic texts, however, reveal an ambiguity towards the use of silk. Some early Islamic traditions recommended modesty in dress and therefore condemned extravagance. Obviously, silk played a part in this, as a symbol of luxury and extravagance. In this tradition, clothing made of *harir* and *qassi* (two types of silk), satin and brocade was forbidden for men, but apparently not for women.⁴⁴⁴ A type of cloak or mantle called *siyara*, worn by both men and women, got its name because it was made of *Seres* or Chinese silk. These luxury garments were given as a gift by the prophet because of their great value, but presumably he did not expect the receiver to wear it. Because, the prophet said, “only those who have no chance for the world to come would wear a mantle made from such silk”.⁴⁴⁵ But silk fabrics were both precious and attractive even for the most religious, if used correctly. Silk cloth made in Egypt covered the Qaba – the holy stone in Mecca.⁴⁴⁶ However, the aversion to luxury garments present in the earliest Islamic period seems to have been abandoned for most Muslims already under the Umayyad’s in the 8th century. The Umayyad caliph Sulayman and his retinue, even his cook, is said to have worn only garments made of variegated silk. The rise

of a new leisured class made way for a widespread taste for silk and other luxury fabrics in the caliphates during the centuries to come.⁴⁴⁷ As I have argued, both Khazz silk and numerous other silk products were produced all over the Islamic world. The early geographers, describing silk production in the Islamic world, express no moral indignation when they describe the large variety of silk products. These texts describe various uses of silk fabrics, like silk garments from Antioch and Damascus, silk curtains from Fasa and handkerchiefs made of silk from Egypt. No moral restrictions seem to have affected the use and distribution of these products in the 9th and 10th centuries. However, later in the medieval period moral remonstrance against silk seems to have grown strong. Makrizi wrote in the 14th century that the Emirs' troops used to wear various kinds of silk in the early days. When the wearing of silk became unlawful in the days of Al-Zahir Baruk (AD 1382–98/784–807 H), the soldiers had to start wearing wool in wintertime.⁴⁴⁸

The Sassanian silk designs, means of production and their development of distribution systems had huge impact on the early Islamic silk production. The Tiraz system of distribution, its factories and the designs of both private and royal silk fabrics were probably leaning heavily on older traditions in the 9th and 10th century. Contemporary written sources suggest that the intricate variety of silk qualities made in this area were used as status markers and as symbols of rank. At the same time some silk fabrics seem to have been distinct regional markers as well as gender markers. The great diversity of fabrics described in the written sources shows that silk was not only simple status markers, but that they had many different meanings.

376 Liu 1996, 18.

377 See f.ex Otavsky 1998.

378 Vogelsang-Eastwood 2006.

379 McAuliffe 1995, 84–141; Kennedy 1981, 26.

380 Serjeant 1972, 5.

381 Serjeant 1972, 7–15; Ibn Khaldun 1989, 260.

382 Translated by Sheila Blair in Cutler 2009b, 207.

383 Serjeant 1972, 7–15.

384 Sotenberg in Serjeant 1972, 9.

385 Ibn Khaldûn in *Prolegomena*, Serjeant 1972, 7–8; Rydberg 1989, 260.

386 Serjeant 1972, 151.

387 Ashtor 1976, 150.

388 Onsorî in Melikian-Chirvani 1991, 176.

389 Lame'i Gorgani in Melikian-Chirvani 1991, 175.

390 Depaulis 2003; Ierusalimskaja 1998; Sheng 1998.

391 Jacoby 2004, 201–204; Muthesius 1997, 66; Nockert 2006, 282.

392 Melikian-Chirvani 1991, 175–178.

393 Explained by Martin Ciszuk in Ciszuk 2011, 1–2.

394 C55000, fabric no. 1. See Chapter 1 for a description of the fabric.

395 Dijkman 2011, 12. See also Ashtor 1976, 151 on the volume of textile production in Baghdad.

396 Stillmann 2000, 121–122.

397 Ierusalimskaja 1996, 243; Wilckens 1992, 34, no. 47.

398 Hägg 1983, 209; Avdusin and Puskina 1988, 26–29; Zubkova, Orfinskaya and Mikhailov 2009; Ierusalimskaja 1996.

399 Noonan 1992, 237.

400 Dja'far Shêâr 1986, 194. Translated from Persian by Houshang Khazaei.

401 Frye 2005, 40.
 402 Ibn Hawqal in Anderson 1992, 195–157.
 403 Dien 2000:1.
 404 Banerjee 1992, ix.
 405 Ierusalimskaja 1996, 242–243.
 406 Serjeant 1972, 97.
 407 Yakut: Mu'djam al-Buldan in Serjeant 1972, 97.
 408 Minorsky 1938, 627.
 409 Narshaki in Serjeant 1972, 99.
 410 Frye 2006, 75.
 411 Shepard and Henning 1959.
 412 Shepherd 1981, 105–106.
 413 Shepherd 1981, 110–115.
 414 Marshak 2006, 60; Raspova 2006, 73.
 415 These are C55000/377 fabric nos 14 and 15 (Nockert 2006, 298). See also Chapter 1.
 416 Dja'far Shéâr 1986, 123–124. Translated from Persian by Houshang Khazaei.
 417 Ibn Khurdâdbih, Kitâb al-Masâlik wa'l-Mamâlik sited in Serjeant 1972, 221.
 418 Yakubi, Ibn al-Fakih, Istakhri.
 419 Minorsky 1982, 133.
 420 Two kinds of silk textiles from Astarabadh are mentioned specially by name; mubram and za'furi (Minorsky 1982, 134).
 421 Ibn al-Fakih in Serjeant 1972, 220.
 422 Ackerman 1938, 1998–1999.
 423 Ibn Hawqal in Anderson 1992, 205.
 424 Ashtor 1976, 151.
 425 Dja'far Shéâr 1986, 65–66. Translated from Persian by Houshang Khazaei.
 426 Ibn Al-Djawzi AD 1116–1200, Serjeant 1972, 25.
 427 Serjeant 1972, 28.
 428 Ibn Kurdadbeh c. 825–911 in Serjeant 1972, 221.
 429 Maranci 2001
 430 Serjeant 1972, 60
 431 Minorsky 1982, 143
 432 Dja'far Shéâr 1986, 87. Translated from Persian by Houshang Khazaei
 433 Jacoby 2004, 219
 434 Serjeant 1972, 73.
 435 Falke 1921; Muthesius 1997, 81.
 436 See f.ex samite silk in Sens Cathedral, fig. 38.
 437 Bechwith 1989, 1–20; Falke 1913, 31–41; Flury-Lemberg 1988, 33; Geijer 1963, 13–14; Martiniani-Reber 1986, 37, 80–81; Muthesius 1996, 81–82; Pfister 1948, 59–67.
 438 Minorsky 1982, 151, ed.
 439 Muthesius 1995, 138.
 440 Muthesius 1997, 66.
 441 Serjeant 1972, 114–117.
 442 Ibn al-Shihna AD 1212–1213 (609 H) in Serjeant 1972, 115.
 443 Banerjee 1992, ix.
 444 Vogelsang-Eastwood 2010, 32.
 445 Stillmann 2000, 15; Vogelsang-Eastwood 2010, 33.
 446 Serjeant 1972, 135.
 447 Stillman 2000, 31–39.
 448 Serjeant 1972, 150.

SILK IN MIKLAGARD: PRODUCTION AND REGULATIONS IN AND AROUND THE GREAT CITY OF CONSTANTINOPLE

Despite the fact that the Byzantine Empire had strict regulations for production and sale of silk products, a large amount of silk found their way to the north and west.⁴⁴⁹ A fair part of the silk found in the Scandinavian graves has been interpreted as Byzantine products.⁴⁵⁰

Production of silk fabrics served as an important basis for power for Byzantine rulers.⁴⁵¹ The imperial capital of Constantinople was at the same time the main centre for silk manufacture, the largest consumer of silk and the main silk market in the Empire in the 9th and 10th centuries.⁴⁵²

Areas of Production

In the 9th and 10th centuries the production of silk fabrics was mainly conducted within the walls of the capital Constantinople, known to the Vikings as *Miklagarðr*, literally meaning 'the large/great city'.⁴⁵³ As discussed later in this chapter, the regulations of silk production in the capital show that a variety of products and qualities were produced there. Raw silk production or sericulture, moreover, probably also took place in the western provinces already at this time. Most of the raw silk produced in the Peloponnese was probably shipped to Constantinople for further processing. But it is a fair possibility that some of it was already being woven into fabric at local production sites by this time.⁴⁵⁴ The written sources give sparse information on when this type of production started in the western provinces. All we know is that silk fabrics were probably produced on a small scale in places like Thebes, Corinth, Euripos and Patra before the 12th century and in Sicily from at least the first half of the 11th century. The *Vita Basilii* (*Life of Basil*, a biography written around AD 950), indicates that some production of silk fabrics took place in Greece already in the 9th century. At this time, a Slavic widow by the name of Danelina or Danelis controlled a large territory around Patra. In the late 9th century she offered 100 of her own female weavers as well as precious textiles as a gift to the Emperor. Among the textiles she offered was a type called *sidonia*, the name indicating that this probably was a fabric made of silk.⁴⁵⁵ Danelina obviously employed a large number of weavers in Patra, and some of them could have processed the local raw silk into fabrics.

Regulations of Production

Silk trade and silk production were among the very few businesses that were organized in guilds in early medieval Constantinople.⁴⁵⁶ The imperial guilds produced precious textiles for the Emperor and the court, but they seem to have made no products for public sale.⁴⁵⁷ Some imperial silks were also offered as gifts at the will of the Emperor. In contrast, several private guilds made a variety of second-quality silk products for the public market. The 'Merchants of Silk Stuff' (Βεστιοπράτῃ) encompassed a substantial part of the silk export from Constantinople, probably including the export to the north.⁴⁵⁸ The organization of private guilds was motivated by the state's desire to control certain sectors of production and distribution. A close supervision of the silk production and trade could prevent private production of the forbidden silks that were strictly reserved for the court, and the private industry was responsible to the Eparch or prefect in the city. He regulated standards and prices of the various silk products and also had to prevent forbidden silks from being exported. *The Book of the Eparch*, a commercial guide for the prefect of Constantinople, was probably written in the late 10th or early 11th century,⁴⁵⁹ and gives valuable information about both silk manufacture and trade in the 10th century.

Organization into guilds proved to be an efficient tool to control the silk industry.⁴⁶⁰ However, we cannot overlook the possibility of a considerable 'black market' involving silk producers and tradesmen trying to avoid government surveillance and taxes. The historian David Jacoby has argued that part of the production and consumption of low-quality silk products probably took place in private homes, outside the sphere of state supervision.⁴⁶¹

The Book of the Eparch gives us a description of several private guilds occupied with silk production and trade, the merchants of raw silk, the silk spinners, the merchants of domestic silk garments, the clothiers and dyers and the merchants of imported silk fabrics.⁴⁶²

The guild called *Serikarioi* seems to have been a kind of umbrella-guild, maybe of factory owners, organizing weaving, dying and tailoring. These guilds produced cloths of various value for the domestic market, but also silk products worth less than 10 *numismata* aimed at foreigners. The *Metaxopratai* guild purchased the raw silk. These seem to have operated in a cartel with another guild, the *Katartarioi*, who worked the raw silk into yarn.⁴⁶³ Due to detailed regulations the silk spinners could not sell their yarn directly to the clothiers. First, the silk yarn had to be handed over to the merchants of raw silk who finally sold the silk to the clothiers.⁴⁶⁴

The use of dyestuff in the production of silk is an important factor to consider in the interpretation of the meaning of silk in the Byzantine Empire. The dye sources had very different value depending on how difficult they were to acquire and to produce. The methods used for dyeing were also regulated by written edicts, because the different methods resulted in a variety of shades of colour and also in differences in durability.⁴⁶⁵ The use of real purple, dyed by the best methods, was only to be used by the Emperor. The eastern Mediterranean area delivered this most precious of dyestuffs used in Byzantine silk production. The purple was extracted from various marine molluscs of the Muricidae family.⁴⁶⁶ A huge quantity of molluscs, about 12,000, was required to colour the trim of a single garment. 'Purple fishers' were in action on the Peloponnese during the reign of

Emperor Romanus 1 Lecapenus in the 10th century.⁴⁶⁷ All, or at least most, of the murex purple dyestuff that was produced in the Empire was probably sent to Constantinople and used in garments intended for the Emperor and his court. The Emperor Constantine Porphyrogenitus was called 'The Christloving Ruler Born in the Purple', not without reason.⁴⁶⁸ The colour of real purple extracted from murex snails symbolized the power and glory of the Emperor, and the penalty for misappropriation was significant, ranging from confiscation to death.⁴⁶⁹

Production of the shellfish-purple was controlled by the imperial court. Thus, it is not surprising that none of the silk fabrics found in Scandinavia so far has been proven to be dyed with murex purple, even if some smaller amount of purple dyed silk could have reached the private market in spite of the regulations.

Clearly, a large variety of purple colours could be obtained by using other dyestuffs than the murex. Tenth century Byzantine sources mention that 'pseudo-purple' was used to dye low- and medium-quality silk, but also higher qualities intended for foreigners.⁴⁷⁰ Special words used for different shades of purple underline the complexity of the social codex connected to silk in the Byzantine society.

The high quality solid scarlet dyestuff obtained from the Kermes insect is of special interest considering the Scandinavian silk finds. Kermes feed only on the Kermes oak tree (*Quercus coccifera*) found in the Mediterranean area and on the eastern Adriatic coast line.⁴⁷¹ Because of its high cost, only high quality yarn was dyed with this dyestuff. One of the samite fabrics found in the Oseberg mound in Norway proved to be dyed with a combination of the precious kermes and the cheaper madder. This is the only Viking Age textile found in Scandinavia so far that has been proven to have been dyed with kermes, but more may be discovered when modern dye analysis is conducted on a larger scale. Both technique and patterns indicate that the fabric from Oseberg was made somewhere in the Mediterranean region.⁴⁷² The combination of Kermes and madder in the fabric indicate that this should be regarded as a product of high quality, but it was still probably not the highest quality product available.

Regulations of Ceremonial Clothing

And I will clothe him with thy robe, and strengthen him with thy girdle, and I will commit thy government into his hand, and he shall be a father to the inhabitants of Jerusalem, and to the house of Judah. Isaiah 22:21⁴⁷³

This passage from the Old Testament in the Bible may stand as an illustration of the symbolic use of clothing in the Christian Byzantine society. The large and glittering Byzantine ceremonial, famous in the early medieval world, confirmed the idea of Godgiven imperial rule. Several of the animals displayed as patterns on silks were ancient images that were integrated and transformed into Christian allegory. The symbols of God-given power and the close connection between Christianity and the Byzantine Empire were expressed through these exclusive silk patterns. The motif depicting a striding lion has been interpreted as an imitation of the Divine Creator, connecting the Byzantine Emperor to God's act of creation.⁴⁷⁴

Several Byzantine silk fabrics with the striding lion motif, probably once given as diplomatic gifts, are still preserved in European church collections. Some of these have woven inscriptions connecting them to specific, named emperors of the

9th–early 11th century.⁴⁷⁵

Different patterns were used to symbolize the divine power of the Empire, and also to make distinctions between ranks at court. Among the large variety of preserved silks interpreted as Byzantine products, there are beautiful fabrics with depictions of birds like eagles and peacocks and various imaginary animals. The *Book of Ceremonies* gives specific instructions for use of such patterned clothing. The most important employees at the Great Office were instructed to wear a purple mantle called *chlamys*, with green-yellow medallions at Christmas. On the same occasion, personnel of the imperial Chamber were required to wear the same type of *chlamys*, but theirs had to be patterned with peacocks. On Easter Sunday, a group of employees at the court called the *praipositoi* were expected to wear a type of *chlamys* decorated with golden lions.⁴⁷⁶

But the role of ceremonial in 10th century Byzantium was not only to express a Godgiven order, but also to deliver up-to-date political messages to society.⁴⁷⁷ No doubt the variety of imperial silks also played an important role here. Gift-giving or withdrawals of gifts are examples of media used as political messages, as in the case of the Bishop Liutprand of Cremona. Liutprand was prevented from bringing ‘prohibited’ silk out of the country during his second diplomatic mission to Constantinople in the year 968. The confiscation of the silk can also be seen as a political message to Liutprand’s master, Otto I. According to Liutprand, the silk was promised to him by the emperor. When Liutprand insisted on keeping the treasures, the Byzantine officials said to him:

But those things are (...) forbidden (...) and if the emperor said what you claim he said, he could scarcely intend such cloths as you dream of, for we ought to outclass other nations in dress just as in wealth and wisdom, so that those who have a unique grace in their virtues may have also a unique beauty in their clothes.⁴⁷⁸

Said to a distinguished bishop, sent to them by a powerful ruler of western lands, this cannot be seen as anything but a harsh insult. But it also underlines the great power and significance of forbidden silk in the Byzantine Empire. Instructions in the *De Administrando Imperio* about how to treat greedy foreigners, illustrates the importance of the Imperial robes that were used as part of the ceremonial:

Should they ever require and demand, whether they be Chazars, or Turks, or again Rus, or any other nation of the northerners and Scythians, as frequently happens, that some of the imperial vesture or diadems or state of robes should be sent to them in return for some service or office performed by them, then thus you shall excuse yourself: These robes of state and the diadems, (...), were not fashioned by men, nor by human arts devised or elaborated, but, as we find it written in secret stories of old history, when God made emperor the former Constantine the great (...) He sent him these robes of state by the hands of His angel (...), and not to clothe himself in them every day, but only when it is a great public festival of the lord.⁴⁷⁹

The strict control of production and use of silk products should be seen in the light of the heavy symbolism imbedded in the imperial ceremonial.

Silk clothing also played an important part in signalling power and rank for other positions at court and for the Byzantine bureaucracy. The Ceremonial Book of Constantine Porphyrogenitos deals with the treaties on the ceremonies of the Byzantine court in the 10th century. The book draws a picture of an intricate system of ranks symbolized in special clothing. Especially the quality of silk and

the dyestuff used was regulated for various ranks and positions in the Court. The hefty value of silk in line with gold and silver made it useful as reward and as a symbol of power. The cut and fabric of the garments symbolized and embodied the positions. Silk garments of higher quality were even used as a kind of salary to higher officers.⁴⁸⁰ To secure their distribution, these products were produced in the imperial factories under direct state control.

In the preserved ceremonial instructions (*Dee Ceremoniis*), the outfits to be worn by the Emperor and his court are organized by occasion, time of the year and by rank. A hierarchy of dress types, of colours and for combinations of garments, existed for different religious feasts and official occasions. The Easter dress-code for the Emperor, for example, prescribed combinations of the *skaramagion* (tunic of parade), another tunic called a *divitision*, a Khazar kaftan and a special mantle. On Easter Sunday he thus had to wear a dark red skaramagion in combination with a gold-embroidered mantle; the next day another special outfit was required.⁴⁸¹

The hierarchal order seems to have been particularly heeded during parades, where differences in colour, combinations of garments and the use of coded decoration on mantles and jewellery distinguished one rank from the other.⁴⁸² Several written sources claim that Haraldr Sigurðarson was in the service of the Byzantine Emperor at the beginning of the 11th century. He later became Haraldr Harðráði (Harald the Hard Ruler) of Norway. When the Norwegian king-to-be became *Spataroikandidatos* at the Emperor's court, he was probably instructed to wear a special necklace called *maniakion* at the reception of the golden Hippodrome and also on Easter Monday. This necklace was among the ceremonial symbols expected to be used by his rank at these special occasions.⁴⁸³

The use of silk in the Byzantine ceremonial was not limited to clothing, but also used in interior decoration like curtains and cushions. Silk decorations were also made for adorning the streets on special occasions. In addition to its prominent role at the Byzantine court, silk fabrics were used by rich citizens, in ecclesiastical furnishing and in liturgical vestments. Silks were also to some extent used to shroud early byzantine Saints, but the distribution of relics and the subdivision of Saints were not as popular in the Byzantine Empire as in the west.⁴⁸⁴

The widespread use of silk products in the Imperial ceremonial and the tight system of regulation of both production and use show how important these fabrics were as signifiers in the middle Byzantine Empire.

Regulations of Trade

The export and exchange of silk in the Byzantine Empire was not left unsupervised by the authorities. Several treaties made between the Byzantine authorities and the surrounding neighbours as well as with distant foreign powers are known to us through preserved written sources. The strict regulations were particularly aimed at high quality products and large quantities of silk. In the 10th century, foreign merchants were free to buy clothing made of silk, as long as their value did not exceed a total cost of 10 numismata.⁴⁸⁵ To give us a picture of the actual value of this sum, Muthesius has found out that in the current period a horse could be purchased for the price of 12 numismata.⁴⁸⁶

The silk that was imported to Scandinavia in the Viking Age came both in the form of fabrics and/or tailored garments, and in the form of silk thread. The thread

and the fabrics that came from Miklagard were probably sold by different groups of merchants in the city. The *Book of the Eparch* gives restrictions and regulations for three separate groups of merchants involved in the silk trade in Constantinople; the merchants of silk stuff and garments, the merchants of imported manufactured goods⁴⁸⁷ and those who specialized in raw silk.⁴⁸⁸ Each group was only allowed to sell the goods that were reserved for them, and were forbidden to deal with goods reserved for another group. Even their physical whereabouts were regulated. The raw silk merchants were supposed to sell their goods in special public markets and not in their private premises. All raw silk supplies had to be bought inside the city walls, and all merchandise had to be declared and bear a sealed impress of the Eparch. Furthermore, the raw silk merchants were, under the threat of flogging and shaving, forbidden to sell their goods to tradesmen who would resell it outside the city.⁴⁸⁹ Byzantine merchants dealing with foreign goods, like Persian silk, were also subject to special rules and regulations for trade. The traders of manufactured goods imported from Syria and Baghdad are mentioned specifically in the *Book of the Eparch*. These dealers occupied a special place in the arcades of the bazar. They were forbidden to deal in any other trade or to purchase any kind of manufactured goods other than those of Syrian origin and silk goods imported from Baghdad, Seleucia (in present day Babil Governorate in Iraq) or 'other similar locality'.⁴⁹⁰ In other words, if you wanted to buy silk from Baghdad when in Constantinople, you could go to an exclusive shop for Persian silk.

On the other hand, the merchants of silk stuff that were members of the guild could open their own shop if they paid an entrance fee to the Eparch and to the guild. But their merchandise was regulated down to the dye stuff used in the fabrics. Special dyes and patterns used for silk garments were reserved for the court and their sale strictly forbidden. This was the case for real purple dyed silk (*Murex bandaris*), that it was forbidden to sell or purchase, even in small quantities. The merchants of silk garments would be flogged and liable to confiscation if they sold these forbidden fabrics. As mentioned earlier, Liutprand, Bishop of Cremona, did attempt to export prohibited purple dyed silks during his diplomatic mission in the year 968, but was stopped by the authorities and sent home in embarrassment.⁴⁹¹

To prevent the sale of illegal goods, the authorities established a control system based on value, raw material and destination. All garments exceeding 10 numismata in value, peach-coloured and a special variant of red garments as well as clothing sold to foreigners, all had to be declared by the Eparch before the transaction.⁴⁹²

Foreign merchants dealing with silk did not have the same privileges as native merchants, with an interesting exception of Syrian merchants who had been residents in the city for at least 10 years, who were granted the same privileges as native merchants dealing with foreign goods.⁴⁹³ The other foreigners were probably under close surveillance during their short visit, and most of them had to stay in a special lodging house. Tyre, a great commercial city in Roman and Byzantine periods, was the seat of a renowned purple industry and trade. Today's Tyre lies within the borders of Lebanon, but was at that time included within the Byzantine province of Syria.⁴⁹⁴ Tyre's dominating position as producer of high quality purple dye may have been a contributing factor explaining Syria's special privileges in Byzantine trade.⁴⁹⁵

Special treaties were also made with some other groups of merchants like the Bulgarians and the Venetians, in addition to the special agreements made with the Rus which I shall return to shortly.

Silk to Scandinavia from Miklagard

There are several reasons to believe that Scandinavia was actually in a position to access a fair amount of silk products of medium and lower quality produced in the Byzantine Empire. This is a reasonable assumption for at least the later part of the Viking Age. There are two factors that point to this. First, the special trade agreements made between the Rus and the Byzantine Empire and secondly, Rus/Scandinavian participation in the Byzantine service.

The first documented contact between Scandinavian Rus and the Byzantine Empire with a probable purpose of reaching an agreement of trade is the rather unsuccessful expedition from Swedish lands in AD 839. The *Annales Bertiniani*, written by the Bishop of Troyes, tells us that a company of Rus escorted by Byzantine envoys arrived at Engelheim this year. The company wanted to return to Sweden from a diplomatic expedition to Constantinople, but could not use the ordinary route on the river Dnjepr because of major conflicts in the area. However, there is no written evidence to support an assumption that an agreement was actually signed at this early time.⁴⁹⁶ After several attacks on Miklagard in the early 10th century, the Byzantine Empire was forced to make two trade treaties with the Rus in the years 911 and 944.⁴⁹⁷ The Rus were at this point given the opportunity to buy about five times as much silk as any other merchants without a special agreement. The legal export of silk to foreign countries at this time comprised primarily medium and lower quality products, and it is reasonable to assume that the majority of silks which were exported from Constantinople to Scandinavia were silks of these qualities. The strict restrictions first and foremost had an impact on the volume of high quality products.

The trade agreements of the first half of the 10th century seems to have been quite favourable for the Rus, in the sense that few other groups seem to have been treated in the same way. Taking into account the special connection between the Kiev Rus and Scandinavia at this time, the agreement must have been favorable for the silk trade to Scandinavia along the Russian rivers.



Fig. 41. Hagia Sofia. Photo: Marion Schneider & Christoph Aistleitner, Wikimedia Commons

Rus soldiers probably entered the Byzantine service from the mid-9th century onwards. In the beginning as individuals, but later, from the second part of the 10th century, Scandinavian mercenaries were systematically recruited into the imperial guard. This group of soldiers came to be known as the Varangian guard, and they are described as the Emperor's closest security in the 11th century.⁴⁹⁸ These mercenaries obviously came to know both the codes and values of a variety of different silk fabrics and clothing, both the forbidden ones and the various fabrics of medium and lower quality offered for sale in the Great city. They probably also had the economic power to buy silk, and not only the lower quality products. Each member in the Varangian guard could earn up to 44 gold coins per year, a large amount of money. The fact that the Rus in the Emperor's guard were prosperous was well known in contemporary society. Liutprand of Cremona wrote after his trip to Constantinople in the mid-10th century that "The palace of Constantinople is guarded by numerous companies of soldiers in order to secure the Emperor's safety, and every day a considerable sum of money is spent upon these men's pay and rations".⁴⁹⁹

Talking about the Varangian guard, the physical evidence of Scandinavian presence in Constantinople deserves to be mentioned briefly. Several inscriptions, a sort of early graffiti written in runes, are still visible on the galleries of the Hagia Sofia mosque (church) in Istanbul. Two of these have so far been interpreted by experts, revealing the male names *Halvdan* (-alfdan) and *'Arni* (modern Arne).⁵⁰⁰ Both names were – and still are – frequently used as male names in Scandinavia. The longest inscription, with the name of Halvdan, has been dated to the late 11th century or later.⁵⁰¹

Haraldr Sigurðarson (later Harald the Hard Ruler) is the most famous of the Vikings serving in the Varangian guard. According to Scandinavian, English and

Byzantine sources, Haraldr served the Emperor in the 1030s. At first he served in the navy and later probably as a commander in the Varangian life guard.⁵⁰² According to Snorre, Haraldr Harðráði acquired considerable wealth during his time in the Emperor's service in Constantinople. He shipped gold and other treasures to his future father-in law for safekeeping in Kiev. According to Snorre "the amount of goods was so large that no man from the North had seen so great a treasure in one man's possession".⁵⁰³

The Emperor probably also gave some of the Varangians of higher rank robes of honour. However, it is unlikely that more than a few of the forbidden fabrics reached Scandinavia. These fabrics were strictly guarded to prevent them from being transferred to foreign lands. Still, some of the fabrics of higher quality produced in the imperial workshops were apparently used as special gifts to prominent foreigners despite the general prohibition. Negotiations during military expeditions could, however, be the basis for exceptions.⁵⁰⁴ Among cloths that could be dispatched to foreigners as gifts on such occasions were the following:

Tailored garments with two vents and collars selected from skaramaggia of varied colours and patterns, decorated with a double silk border; in addition, double-vented garments with collars, of middling value, decorated with a double silk border; other tunics from among those produced in the imperial workshops, of middling value, with two vents and collars and with a single border of silk.⁵⁰⁵

The excerpts mention specifically *skaramagion*, a special garment for parades. As we can see from these excerpts, it is not the whole garment, but collars taken from such garments that sometimes were used as gifts. It has been suggested that the samite fragments found in Birka could be remnants of such skaramagia garments.⁵⁰⁶ There are still uncertainties regarding the proveniences of the samite silks found in Birka, and more research on this matter still remains to be done, but if some of the fabrics that were made in Byzantium are remnants of skaramagion, it is reasonable to suggest that collars or trimmings were taken off their original garments and given separately to the Vikings. These could be used in various ways to decorate different types of clothing. Occasionally, skaramagia were given as salaries at the Byzantine court, according to Liutprand of Cremona.⁵⁰⁷ If this was the case, some of the garments could have been given to specially rewarded northerners during their time in the Emperor's service. But this would be the exception. There is also a gender aspect to consider, as many of the graves in question are interpreted as female burials.⁵⁰⁸ Would skaramagia given to soldiers be worn by Viking Age women at their funeral?

The taste for and knowledge of silk for various purposes must have been to some extent transferred to inhabitants of Scandinavia via the soldiers in the Byzantine service from the 10th century onwards. This knowledge about the value and importance of silk in the Byzantine Empire may have led to a prestigious elevation of these products in their homelands. Given the improvement in export opportunities, it is therefore likely that the demand for silks of lower and medium quality made in Byzants rose in Scandinavia in the 10th century.

449 Muthesius 1990, 126, 1992, 237; Nockert 2006, 298; Geijer 1952, 17; 1972, 261.

450 See Chapters 1 and 2 for details about silk finds from Scandinavia.

451 Laiou 2002, 3.

452 Jacoby 1992, 452.
 453 Kortner, Munthe and Tveterås 1989, 557.
 454 Jacoby 1992, 454.
 455 Jacoby 1992, 458; Sevchenko 1992, 192.
 456 Freshfield 1938.
 457 Lopez 1945, 4.
 458 Freshfield 1938, 16–18; Lopez 1945, 8.
 459 Hendy 1972.
 460 Muthesius 1995, 278; Maniatis 2001, 348–365.
 461 Jacoby 2004, 206.
 462 Lopez 1945, 8.
 463 Muthesius 1995, 282–289.
 464 Lopez 1945, 18.
 465 Muthesius 1997, 27–28.
 466 Cardon 2007, 566.
 467 Interpretation of text in *De Administrando Imperio* by Jacoby 1992, 455.
 468 Sevchenko 1978, 168.
 469 Muthesius 1997, 27–28.
 470 Jacoby 2004, 211.
 471 Cardon 2007, 609–619.
 472 See Chapter 1 for further discussion on this fabric. See also Geijer 1972; Christensen and Nockert 2006, 98.
 473 King James Bible: Isaiah 22:21.
 474 Muthesius 2004, 113–114.
 475 This is the case for lion silks now in Schloss Köpenick and Schloss Charlottenburg, Berlin, Kunstmuseen Krefeld, Kunstmuseum Düsseldorf and St. Heribert in Köln-Deutz. These are double main warp samite silks (Muthesius 2004, 111).
 476 Piltz 1997, 44.
 477 Morris 2003, 254.
 478 Squatriti 2007, 272.
 479 Moravcsik and Jenkins 1967, 67.
 480 Lopez 1945, 4.
 481 Muthesius 2008, 18–19.
 482 Muthesius 2008, 20.
 483 Piltz 1997, 47.
 484 Muthesius 2004, 98.
 485 Lopez 1945, 22.
 486 Muthesius 1995, 261.
 487 Limited to goods from Syria and Baghdad.
 488 Freshfield 1938, 16–23.
 489 Freshfield 1938, 21–23.
 490 Freshfield 1938, 19.
 491 Jacoby 1992, 490.
 492 Freshfield 1938, 16–17.
 493 Freshfield 1938, 19.
 494 Jones 1949, 931 (OCD).
 495 I am grateful to Marina Prusac Lindhagen for pointing to this possibility.
 496 Muthesius 2004, 290.
 497 Cross and Sherbowitz-Wetzor 1953, 65–75.
 498 Blöndal 1978, 32–53.
 499 Muthesius 2004, 292.
 500 Knirk 1999, 26–27.
 501 Svärðström 1970, 247–249.
 502 Blöndal 1978, 57.
 503 Snorre Sturluson 1979, 484, 491.
 504 Haldon 1990, 39.
 505 Haldon 1990, 109.

506 Hägg 1983, 213.

507 Piltz 1997, 46.

508 For further discussion on silk found in Viking Age graves in Scandinavia see Chapter 2.

ATTITUDES TOWARDS SILK

In the previous chapters, the production, regulations and exchange of silk products have been discussed. In this chapter, the focus will be on how the silk was understood as social expression in the Scandinavian societies and in the west. Silk products were used as status markers and a signal of power in the production areas as well as in the Scandinavian consumption areas in the north. But the complex use of patterns, dyestuffs and colours as meaningful elements of social codex was differentiated and varied in the respective areas, as was the silk material itself. Today it is first and foremost the soft and shiny natural material, the established status of silk and its quality for utility in clothing that makes silk attractive as a luxury object. But is this statement also valid for the Viking Age? The quality of silk as raw material must have had significance both in the production areas and in the far north. The use of silk in prominent places in high status graves certainly speaks for its value as high status marker. One can ask whether the silk also acquired extra value by virtue of its long journey. Being foreign, exotic and rare probably gave silk textiles an extra dimension as significant objects in Scandinavia in the Viking Age. As shown, some of the patterns are bearers of religious and cultural symbols attached to the original areas of production but it is not obvious that the symbolic meanings connected to patterns and dyestuffs were made clear and understood in the northern societies. In the areas of consumption, the foreign silks probably blended in with other religions and cultures.

The same types of silk that we find in Scandinavian graves appear in larger quantities in a Christian religious context in many parts of Europe. Silk with Zoroastrian symbols was spread to heathen, Christian and Islamic bastions and partly used in their religious rituals. That is why we find the axe-clover symbol and the Sharokh-bird both in the heathen graves of the north and used as cover for relics for the Saints of France.

Attitudes Towards Silk in the Christian West

In the 9th century, when Christianity was still but a foreign trace in Scandinavia, the church in other parts of Europe had both the power and the wealth to collect valuable silk fabrics as covers for relic treasures. In this way, many unique silk fabrics from the early medieval period have survived in the caring hands of the Catholic Church in Europe. In various churches in Italy, France, Germany and Switzerland relic covers made of silk fabrics with great similarities with the fabrics

found in Scandinavian graves are still preserved. Through their deeds, the Saints earned a place in the light of God according to Catholic belief. From this position, they could plead for ordinary people and thus became important intermediaries between God and the people. The physical presence of their bodies represented in many ways the presence of the living Saint. Thus, remnants of their bodies became relics. Even smaller parts of a Saint's body, or physical objects that had been in touch with the body, like their clothing or shroud, could be seen as relics, though of a lower degree than the Saint's body parts. In this way, silk fabrics that had been in touch with a Saint's body also frequently became relics.

The relics became important elements of public worship. They were displayed and became, from the late 8th century, also a prerequisite for mass. The Church Council at Nikea in AD 787 decided that no church should be consecrated without having its own relic.⁵⁰⁹ It is no wonder that precious silk fabrics formed a worthy frame for the relics, and often even became relics in themselves. They were cut to be the shiny and valuable cover for some of the most holy of things. New and precious textiles could be added when Saints' bodies were on display. Such displays were conducted regularly. In the case of the preserved shrine of St Cuthbert, at least 10 different textiles of silk and other costly materials dating from the 7th to the early 12th century were added to the shrine over the years.⁵¹⁰ The knowledge of how these treasures were brought to the churches, and frequently also the knowledge of which saint's remains they once covered, is unfortunately often lost. Hundreds of relic covers of early medieval silk are spread across Europe. Chelles, a suburb of Paris by the river Marne, houses the Alfred Bonno Collections in Musée de Chelles. The collections show a thrilling example of early medieval silk used as relic covers. Several of these silks show similarities to silks found in Viking graves.



Fig. 42. Fragment No. 12, AB from Chelles, France. Now in the Alfred Bonno Collections, Musee de Chelles, photo: Marianne Vedeler

The Benedictine monastery in Chelles was founded by Queen Bathilde in AD

658–659 and functioned as a monastery until it was abandoned in 1792.⁵¹¹ During this long period, the monastery gathered an impressive collection of relics connected with a long list of saints. An exceptional collection of relics and silk covers, essentially collected between 750 and 810 with additions in the 9th century, has survived from this monastery. Each of the Carolingian relics was wrapped in a valuable tissue together with a written label addressing the related saint. It is worth noting that the samite fragments from Chelles are only rarely cut in long rectangular strips like the ones from Oseberg and other Scandinavian sites. They are more often unevenly cut or cut in quadratic forms. This is not at all surprising, taking into account that these silks were cut to fill a very different need.

A samite fabric with a bird-pattern is of special interest here.⁵¹² The ducks are today yellow on an alternating brownish-red and white background at the right side of the fabric, while the main colour on the back is brownish-red on a yellow background. Between the birds there are yellow bands with brownish-red rectangles. From the back of the birds' heads, a waving band with a brownish-red and white chess-pattern stretches out. The birds stand without feet, and measure approximately 8 cm. The fragment is only 2.9 cm wide, and is one of the very few fragments cut in a strip like many of the samite silks from Scandinavian graves. Traces of folding and seam-holes suggest that this silk was used for another purpose, possibly as a trimming, before it was re-used as a relic cover. A label attached to the fragment had letters written in a minuscule style dated to the 8th or 9th century. The label refers to a *Redoni*, possibly a Saint from Rennes.⁵¹³ The pattern is probably a Shahrokh bird, like the one that was found on the silk strip from the Oseberg grave in Norway.⁵¹⁴

Accepting that the Shahrokh bird with its Sasanian origin was used to cover remains of the Saint, would the monastery have used this silk as a relic cover if they knew the Persian myth? Probably not. In my opinion, this indicates that the original symbolic meaning of the patterns was not known to the users. The qualities of the silks, and their prominent position as status markers and diplomatic gifts, must have played an important role. But the fact that the silks represented an attractive foreignness, giving extra power and energy to the objects, may also have been important.⁵¹⁵

Silk fabrics were also used for other liturgical practices in the Latin Church. Fabrics used as hangings, curtains, altar cloths, manuscript bindings and cushions were presented to the Churches.⁵¹⁶ The use of silk as a highly valued diplomatic gift must have played a role in the use of silk as the most suitable cover for relics and for its relevance in various other liturgical practices. Kings and noblemen often donated relics and silk to churches and monasteries, and were also themselves in some cases relic collectors. But they also used silk to present themselves as the elite, by using silk on clothing and as interior decoration. Not only royalty but also other parts of the nobility used silk as a status marker in the Christian west. Several graves have revealed various silk textiles used as both burial clothing and burial furnishing already visible in the Merovingian period. Examples of such early silk-furnished burials are to be found in the royal Arnegundes grave in St. Denis, Paris and in a grave dating to the 6th or early 7th century in a cemetery at Oberflacht in south-west Germany.⁵¹⁷ Unfortunately, the silk used for prestigious clothing is less well preserved than the numerous silk

fabrics used as relic covers. This is not surprising, taking into account the less favourable preserving conditions in most graves. Nevertheless, prestigious silk clothing must have constituted an important part of elite display in the Christian west.

Silk in Scandinavian Societies

When the silk reached the Scandinavian region, it had come a long way from its original areas of production. Some of the original meaning of patterns and colours may have changed or got lost. But as in the production areas, prestige and power were closely connected to silk. The archaeological contexts as well as the medieval Norse texts present silk as a strong signal of power and a token of affiliations.

Silk in Norse Texts

The Norse Sagas and poems, written down in the 11th century and later, deal with the Scandinavian societies in the Viking Age. Referring to an older oral tradition but written down much later than the Viking Age, they have to be used with care as sources to the understanding society at that time. But these medieval texts are still useful for interpretations of the value of textiles in Norse societies. Occasionally, some texts refer to high status fabrics like silk. Precious cloth is mainly referred to by the use of three different terms; *Guðvefr*, *pell* and *Silki*. Some texts refer to all three terms at the same time, making it clear that they had different meanings, for example “þar tóku þeir mikit fé af goð- unum, gull ok silfr, silki ok pell ok guðvef – There they took a lot of goods, gold and silver, silk and pell and guðvef.”⁵¹⁸ In this case, it is a clear distinction between the three terms, showing that they were considered as different forms or types of fabric.

The term *guðvefr* literally means ‘god-weave’, or a good or costly fabric. Thor Ewing has argued that *guðvefr* should be interpreted as another word for samite silk, but this is, in my opinion, not at all obvious.⁵¹⁹ This was clearly a precious and costly cloth, but the linguist Fritzner argues that *guðvefr* must have been a generic term for several types of fabric. For example, one of the sagas refers to “*guðvefr sá er clesis heitir* – A *guðvefr* called *clesis*”.⁵²⁰ According to Fritzner, *guðvefr* probably contained silk, but it is also something distinctively different. This kind of fabric is mentioned in a variety of different settings, with reference to clothing as well as about body covers for funerals.⁵²¹ The term *guðvefr* is also referred to in Norse texts as ‘God-weave rope’ (*guð-vefjartaug*), indicating that the term involves the use of a special kind of thread. It is therefore possible that the term *guðvefr* refers to the use of the precious metal thread with a core of silk. As we have seen, metal-wrapped silk thread was used in tablet-woven bands as well as in embroidery by the Scandinavian aristocracy during the Viking Age.

The other term used, *pell*, was probably also a generic term referring to several types of precious cloth. The *Fagrskinna* reports that Haraldr Sigurdsson’s sail was made of *pell* inlaid with gold, while *Kalvskinnet* talks about *pellsbúnaðr*, a sort of trimming made of *pell*.⁵²² The term *silki* or silk, seem to refer to the material itself, like silk-thread or silkweave. It does not seem to refer to a specific kind of fabric or garment, but silk material used in many different settings.

All three terms are often used to give a positive description of overwhelmingly

rich and powerful persons, and are also frequently mentioned together with gold.

Signals of Power

The earliest proof of silk used in Scandinavia has been found in the monumental grave mounds in the early 9th century. As we have seen, the Viking Age silk in Scandinavia is mostly found in graves. The number of graves containing silk is small, and it is not easy to find a clear division of the practice of using silk either between regions or between genders. Graves with remnants of silk have been found all over Scandinavia, with the largest concentration in the southern part. The use of silk as such can hardly be seen as an ethnic, geographical marker or as a gender marker in the Scandinavian areas. But there are small differences between the sexes in use of samite silk, the tabby silk and the tabletwoven bands and embroideries.

Some imported objects probably became more available than before to a wider population range in the Scandinavian societies during the Viking Age.⁵²³ This seems to have been the case for several types of metal jewellery, beads and weaponry. But these changes in the availability of imported goods may have had lesser implications for prestigious objects traded from long distances. The consequent use of silk as a signal of high status is striking, and suggests that silk was still only available for a small and exclusive group. All the graves containing silk have been interpreted as high status, with rich grave furniture and monumental grave markers or both. This is the case from Ness in the north to Mammen in the south. Consequently, an interpretation of silk as a strong status marker across geographical borders is reasonable. The importance of silk in the Byzantine Empire and in the Persian areas of production makes it reasonable to assume that the use of silk had symbolic functions even in the north, with possible references to its use in production areas as well as in western parts of Europe. The strategic placement of silk in the burials suggests its function as a symbol of power.

The diffusion and enforcement of political ideology can partly be conducted by the use of symbolic objects. In this process, the development and redefinition of symbols depend on the distribution of resources. To be able to control the definition of silk as a symbol of power and its specific political meaning, it is essential that the elite control access to and supply of silk.⁵²⁴ This was the case in the Byzantine Empire, as discussed in the previous chapter. But here, as well as in the Persian area, the use of silk was controlled through a system of differentiation, which meant that only special qualities and types of silk were reserved for the elite. This is not the case in Scandinavia. The distribution of silk indicates that all kinds of silk were exclusively reserved for the elite throughout the Viking Age, suggesting that the elite controlled the distribution and use of all silk products. Apparently, no attempt was made to distinguish between different qualities of silk. This difference could be explained by the fact that the silk was exotic, rare and very expensive in Scandinavia in the 9th and 10th century.⁵²⁵ This may have changed in the following centuries.⁵²⁶

Physical objects that have been transported over great distances are often assigned additional value, by virtue of their foreignness. In many traditional cultures, social and political power is associated with access to information about alien people, places and objects. In this way, things from an exotic sphere become

potentially beneficial.⁵²⁷ They represent not only geographical distance, which gives them an exclusive natural attractiveness, but also a potentially spiritual foreignness which gives them a mythical, supernatural and powerful force. Mary Helms, who has studied skilled crafts, trade and power in traditional societies, emphasizes the importance of skilled artisans and their value as re-creators of ancestral skills and transformative power. She argues that objects of skilled craftsmanship obtained from distant places embody a sacral power, not only of the skilled craftsman but also as evidence of distant outside contact. Those who acquire such goods show that they command or possess this power, which can be translated into political and ideological legitimacy.⁵²⁸ Thus, the silk could represent both a potentially natural and supernatural power.

But if the use and distribution of silk really were controlled by the elite, how did they manage to exert this control? In case of gift giving, when high quality products were used as diplomatic gifts, the distribution could easily be controlled. But I have argued that most of the silk products reached Scandinavia by way of trade. How could the elite control the trade and distribution of silk? The use of silk fabrics as status markers in the production areas as well as in Scandinavia indicates an exchange of knowledge about the value of silk, both economically and culturally. It is assumed that the social elite in Norway were an integrated part of a broader aristocratic network in Northern Europe,⁵²⁹ but did the exchange of symbol knowledge take place directly between the elites? I think it is reasonable to assume that Viking Age merchants as well as the rulers themselves played a key role in the knowledge exchange, as well as in the control and distribution of the silk fabrics. Presumably, a small network of traders and travellers had been able to communicate the economic, cultural and political importance of silk with each other and with their clients across Europe. This could be a key to understanding how the apprehension of silk was spread in early medieval Europe. It was probably first and foremost within the small group of merchants and between members of the upper social strata that the knowledge of meaning as used in the production areas was exchanged. It can be argued that the effective but fragile network of international trade in the Viking Age was also normative for the development and use of status markers in the areas that it covered.⁵³⁰

The archaeological material is the primal source available for understanding the Scandinavian societies in the Viking Age. Very few contemporary written sources exist from this period in Scandinavia. Consequently, we do not have access to the same kind of information that is available in the areas of production and in the Christian west, about the meaning of silk patterns and how the silk was used. We have seen that silk patterns with a variety of different motifs, like the eagle, the lion, the duck and the boar's head, carried symbolic meanings in the areas of production. There is nothing to suggest that the original symbolic connotations were preserved when the silk was exchanged to the Scandinavian areas, even in cases where the same animals had important positions in figurative art and Scandinavian cosmology. The shaman in the guise of a bird, or the God Odin depicted with an eagle's head or escorted by his ravens, are popular motifs in both art and medieval poetry. The wild boar is also depicted in textile art; we find a beautiful example on a fragment of the Oseberg tapestry weave.⁵³¹ The wild boar, also depicted on samite silks found in both Mochevaja Balka and the Christian west, has been described by Lotte Hedeager as a symbol of a fatalistic warrior

philosophy and “the toughest, most aggressive and stubborn animal in Iron Age Europe”.⁵³² Still, I will suggest that animals depicted on the samite silk placed in Viking graves did not have the same symbolic meaning as the figures found on locally made tapestry weave. The combination of samite fabrics with different patterns, and the cut of narrow strips without taking notice of pattern reports, suggest that these pattern messages on the samite silk were not meaningful when used as trimming in the Scandinavian areas. The fact that many strips have been sewn on with the wrong side out, reinforces this assumption. When cut into narrow strips, the original patterns on the samite silks were reduced to beautiful compositions of colour and light. The original figural motives were no longer visible.

The patterns in tablet woven bands and embroidery differ a great deal from the strips of samite. Silk embroidery depicting imaginary animals and the Christian cross may be remnants of Viking raids. But these motifs are rare among the remaining silk material. The patterns of the tablet woven bands are often geometrical rather than figural. Many of these depict old motifs used in various places and periods, like the swastika, stars, crosses and diamonds. Many of the tablet woven bands are made locally, tablets and even unfinished tablet weaves have been found in some of the Scandinavian graves. For use in tablet weaves and locally made embroidery, silk thread must have been imported or even re-used from old fabrics. In these cases, the silk fibre with its shine and softness may have been the main attraction.

Silk and Bonds of Loyalty

Zanette Glørstad has suggested that cloaks and certain types of ring brooches found in male burials were used as political symbols associated with bonds of loyalty during the 9th and 10th centuries in Norway. The foundation of new power elites around the Chieftains, and new rituals of affiliation, came as a natural consequence when more power was given to a small, aristocratic network in the second half of the 9th century.⁵³³ It is tempting to see the appearance of silk in Scandinavian graves in light of this theory. However, as demonstrated in Chapter 2, no type of silk fabric suggests that there was a male specific dress-code connected to silk in Scandinavia. Strips of samite silk were used by both sexes, and have been found in more female than male graves (so far, 54 female and 11 male burials). Graves with tablet-woven bands and embroidery containing silk are equally represented among men and women, while tabby silk has been found only in female graves or graves without known gender. If silk cloths were used as symbols of military rank, we would expect to find a clear distinction between male and female burials concerning the use of silk as part of the burial equipment. This is not the case. It is more likely that silk was used as part of the clothing to signify more general relations of dependency, affiliation or correspondence with other elite groups in Europe or in some of the production areas.⁵³⁴ The number of silk finds rises during the 10th century – from 15 dated to the 9th century to 59 dated to the 10th century. The increasing number of silk remnants from this period could suggest a stronger relationship with the Byzantine Empire or with western powers, but more research needs to be done on the question of silk provenience. A better method of provenience studies could then vindicate the claim that more 9th than 10th century silks found in Scandinavia were made in the Central Asian production

centres, suggesting a shift from Central-Asian to Mediterranean import in the 10th century. If this is the case, perhaps silk was used to signal bonds or affiliations between elite groups across ethnic and geographic distances rather than within local power elites?

At the End

The significance of silk in the areas of production in the early medieval period can hardly be overestimated. In the Byzantine Empire, silk became a symbol of the divine, a symbol of the Emperor's God-given power. A large and complex hierarchy of patterns, colours and qualities of silk directly referred to rank and position in political and military Byzantium. Silk seems to have been used in much the same way in the Caliphate. But the large and varied Persian production area called for a greater variety based on regional differences. Written sources indicate that special silk products also symbolized regional identity. In this way, the silk products often had names connecting them to a region or a specific place of production. Some patterns did not only refer to status and rank, but bore a whole mythical story in them, like the Sharokh bird. In this way, silk products embedded a large and complex variety of meaning.

Rare and costly silk seems to have retained its meaning as a symbol of God-given power, when reaching the Christian west. Here, the widespread use of silk as relic covers gave it a special connection with the divine.

It is possible that the combinations of silk with gold or silver were seen as divine products in the Scandinavian areas, but this is not obvious. It is clear, however, that the silk was used as a status marker and strengthened authority in the Viking world. It is reasonable to ask if the presence of samite silks in Scandinavian high status graves reflects a wish to be associated with the social structures to which these silks were connected, both in the areas of production and in other consumption areas in Europe. This does not mean that the symbolism of silk patterns was equally understood everywhere. Where the nobility in the areas of production connected diverse meanings to patterns and qualities, this seems not to have been the case in the north. The shiny silk fibre itself, with its beautiful colours, sometimes in combination with costly metals, seems to have been the essential point, not the patterns. It is probably true that the nuances connected to regions of production and strange myths did not have the same meaning for consumers far away. But cultural meetings encouraged by trade must have functioned as an engine for the exchange of knowledge about silk as a status and authority marker. Exchange of knowledge about the value of the raw materials, the complex and labour-intensive production of the fabrics and their aesthetic expression has provided the basis for this role.

The use of silk fabrics as status markers in the production areas as well as in Scandinavia indicates an exchange of knowledge about the silk value, both economically and culturally. In a society with a small and tight network of exchange, there has not necessarily existed a clear distinction between trade relations and diplomatic gift exchange. It could be argued that knowledge of social, aesthetic and economic value of status products like silk was communicated across ethnic boundaries through economic interaction.

The silk textiles found in Scandinavian graves can be seen as a material

manifestation of cultural meetings. Identities are created, recreated, transformed and negotiated through cultural meetings on many levels. In this process, communication of difference is important, especially if this communication is systematic and sustained over a long period of time.

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- 509 Tanner 1990, 145; Concilium Nicaenum II-787, Canon 7.
510 Nockert 2006, 298.
511 Laporte 1988, 2.
512 Laporte 1988, 142–143; AB Les tissus de Chelles, fragment no. 12.
513 Laporte 1988, 120, 142–143.
514 See Chapter 1.
515 Hedeager 2011, 143–147.
516 Muthesius 2008, 125.
517 Marzinzik 2008.
518 Fritzner 2011.
519 Ewing 2006, 152.
520 Fritzner 2011: *guðvefr*.
521 *var kistan sveipð pelli ok tjaldat allt guðvefjum* (Fritzner 2011: *guðvefr*).
522 *pell gullskotit in Fsk. 147, pellsbúnaðr in Kalfsk. 83a* (Fritzner 2011: *pell*).
523 Skre 2007a, 451.
524 Kertzner 1988, 1–5; Glørstad 2010, 10–11.
525 Further research on the quality of the silk products, including focus on 9th versus 10th century, may nuance this picture.
526 G. Hansen, in press.
527 Helms 1993, 1998; Hedeager 2011, 146.
528 Helms 1993, 46–51.
529 Carver 1989; Glørstad 2010; Jørgensen 1991; Myhre 1993.
530 Vedeler, in press 2.
531 Hedeager 2011, 86–88; Hougen 2006, 35–37.
532 Hedeager 2011, 89–90.
533 Glørstad 2010, 253.
534 See DeMarrais *et al.* 1996 for a generalized theory on this subject.

Bibliography

- Aannestad, H. (2004) En nøkkel til kunnskap. Om kvinneroller i jernalder. In E. H. Hofseth and E. Mikkelsen (eds), *Viking LXVII*, 69–82, Norsk arkeologisk selskap, Oslo.
- Ackerman, P. (1938) Textiles of the Islamic Periods. A. History. In A. U. Pope and P. Ackerman (eds), *A Survey of Persian Art from Prehistoric Times to The Present*, vol. V, 1995–2162, Manafzadeh Group, Teheran/Oxford University Press, London.
- Andersen, H. H. (1991) Dendrokronologisk datering af Mammengraven. In M. Iversen (ed.), *Mammen. Grav, kunst og samfund i vikingetid*, 43–44, Højbjerg.
- Anderson, W. (1992) Ibn Huokul's account of Khorasan, translated. In F. Sezgin (ed.), *Islamic Geography* 31, 172–234, Institute for the History of Arabic-Islamic Science at the Johann Wolfgang Goethe University, Frankfurt am Main.
- Arntzen, J. E. (2011) En 'palisadehaug' fra yngre jernalder i Nord-Norge?, *Nikolay, arkeologisk tidsskrift* 114, 33–42, University of Oslo, Oslo.
- Arntzen, J and Sjøveld, T. in prep. The ritual Complexities of a Viking Age boat burial at Hamarøy, Northern Norway.
- Arwill-Norbladh, E. (1991) The Swedish Image of Viking Women. Stereotype, Generalisation and Beyond. In R. Samson (ed.), *Social Approaches to Viking Age Studies*, 53–64, Cruithne Press, Glasgow.
- Ashtor, E. (1976) *A Social and Economic History of the Near East in the Middle Ages*, Collins, London.
- Avdusin, D. A and Puskina, T. A. (1988) Three chamber graves at Gniozdovo. In Bo Gräslund (ed.), *Fornvännen, Journal of Swedish Antiquarian Research* 83, 20–33, Royal Academy of Letters, History and Antiquities, Lund.
- Azarpay, G. (1981) *Sogdian Painting: The Pictorial Epic in Oriental Art*, University of Chicago Press, Chicago and London.
- Bagge, S. (1990) Harald Hardråde i Bysants. To fortellinger, to kulturer. In Ø. Andersen and T. Hägg (eds), *Norge og Hellas. Kontakt-koomparasjon-kontrast* 169–192, Bergen.
- Baines, P. (1978) *Spinning Wheels, Spinners and Spinning*, BT Batsford, London.
- Banerjee, P. (1992) *New Light on Central Asian Art and Iconography*, Abha Prakashan, New Delhi.
- Beckwith, C. I. (2009) *Empires of the Silk Road. A History of Central Eurasia from the Bronze Age to the Present*, Princeton University Press, Princeton and Oxford.
- Beckwith, J. (1989) Coptic Textiles, *Studies in Byzantine and Medieval Western Art*, 1–20, Pindar, London.
- Belenizki, A. M. and Belous, D. V. (1980) *Mittelasiens kunst der Sogden*, E. A. Seemann Buch- und Kunstverlag, Leipzig.
- Bender Jørgensen, L. (1986) *Forhistoriske tekstiler i skandinavien. Prehistoric Scandinavian Textiles*. Det Kongelige nordiske oldskriftselskab, København.
- Bender Jørgensen, L. (1992) *North European Textiles until AD 1000*. Aarhus University Press, Aarhus.
- Blackburn, M. (2007) The Coin-finds. *Means of Exchange. Dealing with Silver in the Viking Age*. In D. Skre (ed.), Kaupang Excavation Project Publication Series 2, Norske Oldfunn XXIII, 30–74, Oslo.
- Blomquist, R and Mårtensson A. W. (1963) *Thulegrävningen 1961*, Archaeologia Lundensia 2, Lund.
- Blöndal, Sigfús (1978) *The Varangians of Byzantium. An Aspect of Byzantine Military History*.

- Translated, Revised and Rewritten by Benediktz*, Cambridge University Press, Cambridge.
- Bonde, N. and Christensen, A. E. (1993) Dendrokronologisk datering af tømmer fra gravkamrene i Oseberg, Gokstad og Tune. *Universitetets Oldsaksamling Årbok 1991/1992*, 153–160, Kulturhistorisk Museum, Universitetet i Oslo.
- Boyer, R. (1977) Restes de vêtements de soie dans un sarcophage paleochrétien découvert à Marseille, *Bulletin de liaison du CIETA* 45, 25–30.
- Brown, P. (1981) *The Cult of the Saints. Its Rise and Function in Latin Christianity*, University of Chicago, Chicago.
- Brøndstedt, J. (1936) Danish Inhumation Graves of the Viking Age. *Acta Archaeologica* VII, 81–228.
- Burnham, D. (1980) *A Textile Terminology. Warp and Weft*, Routledge and Kegan Paul, London.
- Bury, J. B. (1907) The Ceremonial Book of Constantine Porphyrogenetos, *English Historical Review* 22, 209–227, 426–448.
- Callmer, J. (2007) Urbanisation in Northern and Eastern Europe, ca. AD 700–1100. In J. Henning (ed.), *Post-Roman Towns, Trade and Settlement in Europe and Byzantium*, 233–370, Walter de Gruyter GmbH and Co.
- Cardon, D. (2007) *Natural Dyes. Sources, Tradition, Technology and Science*, Archetype Publications, London.
- Carver, M. (1989) Kingship and material culture in early Anglo-Saxon East Anglia. S. In Basset (ed.), *The Origins of Anglo-Saxon Kingdoms*, 141–158, Leicester University Press, Leicester.
- Champion, H. (1911) Les tissus anciens du trésor de La Cathédrale de Sens, *Revue de L'Art Chrétien. Tome LXI–LIVm année*, Desclee, De Brouwer and C, Paris.
- Christensen, A. M and Nockert, M. (2006) *Osebergfunnet bind IV, Tekstilene*, Museum of Cultural History, Univ. Of Oslo, Oslo.
- Ciszuk, M. (2011) *Rapport: Samtidsiden från Osebergskeppet*, report in the Museum of Cultural History, University of Oslo.
- Crowfoot, E., Pritchard, F. and Staniland, K. (1992) *Textiles and Clothing c. 1150–c. 1450*, Medieval Finds from Excavations in London 4, HMSO, London.
- Cross, S. H. and Sherbowitz-Wetor, O. P. (1953) *The Russian Primary Chronicle. Laurentian Text* (ed. and translation). Mediaeval Academy of America, Cambridge, Massachusetts.
- Cutler, A. (2008) Significant Gifts: Patterns of Exchange in Late Antique, Byzantine, and Early Islamic Diplomacy, *Journal of Medieval and Early Modern Studies* 38:1, 80–10.
- Cutler, A. (2009a) Gifts and Gift Exchange as aspects of the Byzantine, Arab, and Related Economies, *Image Making in Byzantium, Sasanian Persia and the Early Muslim World*, Ashgate/Variorum Collected Papers, Farnham.
- Cutler, A (2009b) The Emperor's old clothes. Actual and virtual vesting and the transmission of power in Byzantium and Islam, *Image Making in Byzantium, Sasanian Persia and the Early Muslim World*, Ashgate/Variorum Collected Papers, Farnham.
- Davidson, H. R. E. (1976) *The Viking Road to Byzantium*, George Allen and Unwin, Hertford.
- de la Vaissiere, E. (2004) Sogdian Trade. *Encyclopedia Iranica*. <http://www.iranica.com/articles/sogdian-trade> 17.02.2011
- DeMarrais, E. L. J. C. and Earle, T. (1996) Materialization and Power Strategies. *Current Anthropology* 37:1, 15–31.
- Depaulis, J. (2003) *Central Asian Art*, Confidential Concepts, London.
- Desrosiers, S. (2004) *Soieries et autres textiles de L'antiquité au XVIe siècle*, Catalogue du musée national du Moyen Âge, Thermes de Cluny, Réunion des Musées Nationaux, Paris.
- Dien, A. E. (2000) *The Glories of Sogdiana*, <http://www.silkroadfoundation.org/artl/sogdian.shtml>, The Silkroad Foundation.
- Dja'far Shêâr (1986) *Ibn e Hawqal: Safar-Name-Ye (Surat ol-Ard)*. *Historical geography of Iran in 4th century AH*, Teheran.
- Duczko, W. (2004) *Viking Rus. Studies on the presence of Scandinavians in Eastern Europe*. In B. Crawford, D. Kirby, J.-V. Sigurdsson, I. Øye, R. W. Unger and P. Urbanczyk (eds), *The Northern World. Northern Europe and the Baltic c. 400–1700 AD. Peoples, Economies and Cultures* 12, Brill, Leiden.
- Ewing, T. (2006) *Viking Clothing*, Tempus, Stroud.
- Falke, O. Von (1913) *Kunstgeschichte der Seidenweberei*, Berlin.
- Fett, P. (1953) Oldsamlingsen tilvekst 1953. In J. Bøe, C. L. Godske, T. M. Vogelsang and L. J.

- Willhelmsen (eds), *Bergens Museums Årbok 1953*, Grieg, Bergen.
- Fleury, M. and France-Lanord, A. (1979) La Tombe d'Aregonde, *Dossiers de l'archéologie* 32, 80–85.
- Flury-Lemberg, M. (1988) A Recent Silk Find from Antinoë. In I. Estham and M. Nockert (eds), *Opera textilia variporum temporum*, 33–40, Museum of National Antiquities, Stockholm Studies 8, Statens Historiska Museum, Stockholm.
- Foucault, M. (1999) *Seksualitetens historie 1: Viljen til viten* (translation: Schaanning, E.), Oslo.
- Franzén, A. M. and Nockert, M. (2012) *Prydnadssömmar under medeltiden*, Kungl. Vitterhets Historie och Antikvitets Akademien, Stockholm.
- Fremersdorf, F. (1941–1942) Zwei wichtige Frankengräber aus Köln, *IPEK XV–XVI*, 124–139.
- Freshfield, E. H. (1938) *Roman Law in the Later Roman Empire. Byzantine Guilds Professional and Commercial. Ordinances of Leo VI c. 895 from The Book of The Eparch*. Trans. E. H. Freshfield, Cambridge University Press, Cambridge.
- Fritzner, J. (2011) *Ordbog over det gamle norske sprog* (dictionary of the old Norwegian language), Online: <http://www.edd.uio.no/perl/search/search.cgi?appid=86&andtid=1275&oppsettId=199&resultatId=774>, Enhet for digital dokumentasjon, University of Oslo, 27.11.2012.
- Frye, R. (2005) *Ibn Fadlan's journey to Russia. A Tenth Century Traveler from Baghdad to The Volga River*. Translated with commentary, Markus Wiener Publishers, Princeton.
- Frye, R. (2006) Bukhara and Zandani. In R. Schorta (ed.), *Central Asian Textiles and Their Contexts in the Early Middle Ages*, 75–80, Reggisberger Berichte 9, Abegg-Stiftung.
- Gatens, M. (1999) Power, Bodies and Difference. In J. Price and M. Shildrick (eds), *Feminist Theory and the Body. A Reader*, 227–234, Edinburgh University Press, Edinburgh.
- Geijer, A. (1938) *Birka III. Die Textilfunde Aus den Gräbern*, Kungl. Vitterhets historie och antikvitets akademien, Almqvist and Wiksells boktryckeri, Uppsala.
- Geijer, A. (1951) *Oriental Textiles in Sweden*, Rosenkilde and Bagger, København.
- Geijer, A. (1964) A Silk from Antinoë and the Sasanian Textile Art, *Orientalia suecana* XII, 1–63.
- Geijer, A. (1972/1980) *Ur Textilkonstens historia*, CWK Gleerup bokförlag, Lund.
- Glørstad, Z. T. (2010) *Ringspinnen og kappen. Kulturelle møter, politiske symboler og sentraliseringsprosesser i Norge ca. 800–950*, PhD thesis, University of Oslo
- Gokstad Revitalised Project website (2013) <http://www.khm.uio.no/english/research/projects/gokstad/01.02.2013>
- Golden (1990) The Peoples of the South Russian Steppes. In S. Denis (ed.), *The Cambridge History of Early Inner Asia*, Cambridge UP, Cambridge, p. 256–284.
- Graham-Campbell, J. (1980) *Viking Artifacts: A Select Catalogue*, British Museum, London.
- Grieg, S. (1928) Kongsgaarden. In A. W. Brøgger and H. Schetelig (eds), *Osebergfundet Bind II*, 1–286, Den norske stat, Oslo.
- Gullbekk, S. H. (2008) Coinage and monetary Economies. In S. Brink. and N. Price (eds), *The Viking World*, 159–169, Routledge, London.
- Hald, M. (1950) *Olddanske tekstiler. Komparative tekstil- og dragthistoriske studier paa grundlag af mosefund og gravfund fra jernalderen*, Det kongelige nordiske oldskriftselskab, København.
- Hägg, I. (1983) Birkas orientalske praktplagg, *Formvannen* 78, Stockholm.
- Hägg, I. (1991) *Die textilfunde aus der Seidlung und aus den Gräbern von Haitabu*. Bericht 29, Schleswig.
- Haldon, J. F. (1990) *Constantine Porphyrogenitus Three Treatises on Imperial Military Expeditions. Introduction, Edition, Translation and Commentary*, Verlag der Österreichischen Akademie der Wissenschaften, Wien.
- Hallström, G. (1944) Gravfältet på Vivallen i Funäsdalen, In E. Festin (ed.), *Formvårdaren*, 305–344, Heimbygdas tidsskrift, Östersund.
- Hammarberg, I., Malmer, B. and Zachrisson, T. (1987) *Byzantine Coins Found in Sweden*, Commemationes de nummis saeculorum IX–XI. In Suecia repertis. Nova series 2, Kungl. Vitterhets Historie och Antikvitets Akademien, Stockholm.
- Hansen, G. (in press) Luxury for Everyone? Embroideries on Leather Shoes and the Consumption of Silk Yarn in 11th–13th Century Northern Europe. In A. Huang and C. Jahnke (eds), *Textiles and the Medieval Economy*. Ancient Textiles Series. Oxbow Books, Oxford.
- Hardin, I. R. and Duffield, F. J. (1986) Characterization of Metallic Yarns in Historic Persian Textiles by Microanalysis. In H. Needles and S. Haig Zeronian (eds), *Historic Textile and Paper*

- Materials, 231–252, Advances in Chemistry, American Chemical Society, Washington DC.
- Hedeager, L. (2011) *Iron Age Myth and Materiality, an Archaeology of Scandinavia AD 400–1000*, Routledge, London and New York.
- Hedeager Krag, A (1998) Dress and Power in Prehistoric Scandinavia c. 550–1050 AD. In L. Bender Jørgensen and C. Rinaldo (eds), *Textiles in European Archaeology. Report from the 6th NESAT symposium, 7–11th May 1996, Borås*, 125–130, GOTARC Series A, Vol. 1, Göteborg.
- Hedeager Krag, A (1999) Fränkisch-byzantinische Trachteinflüsse in drei dänischen Grabfunden des 10. Jahrhunderts. In M. Müller-Wille and H. G. Peters (eds), *Archäologisches korrespondenzblatt* 29:3, 425–444.
- Hedeager Krag, A (2005) Denmark-Europe: Dress and Fashion in Denmark's Viking Age. In J. P. Wild (ed.), *Northern Archaeological Textiles NESAT VII. Textile symposium in Edinburgh, 5th–7th May 1999*, 29–35, Oxbow Books, Oxford.
- Hedeager Krag, A. (2006) Byzantine Influence in a Danish Viking Age grave. In E. Jeffreys. and K. Haarer (eds), *Proceedings of the 21st International Congress of Byzantine Studies, Volume 1*, Ashgate, Farnham.
- Hedeager Krag, A (2010) *Ørnetæppet og andre silkefund fra Knud den Helliges helgenskrin I Odense Domkirke*, Poul Christensens Forlag, København.
- Hedeager Krag, A. and Ræder Knudsen, L. (1999) Vikingetidstekstiler. Nye oppdagelser fra gravfundene i Hvilehøj og Hørning. In *Nationalmuseets Arbejdsmark 1999*, 159–170, København.
- Helms, M. (1993) *Craft and the Kingly Ideal. Art, Trade and Power*, University of Texas Press, Austin.
- Hendy, M. F. (1972) Light Weight Solidi, Tetartera, and The Book of The Prefect. *Byzantinische Zeitschrift* 65, 57–80.
- Hougen, B. (1935) *Snartemofunnene. studier i folkevandringstidens ornamentikk og tekstilhistorie*, Norske Oldfunn VII, Oldsaksamlingen, Oslo.
- Hougen, B. (1973) Gultråd fra Gokstadfunnet. Et fragment. In E. Kivikoski, P. Sarvas and A. Siiriäinen (eds), *Honos Ella Kivikoski. Suomen Muinaismuistoyhdistyksen aikakauskirja* 75, 75–81, Finska fornminnesföreningen, Helsinki.
- Hougen, B. (2006) Billedvev. In A. E. Christensen and M. Nockert (eds), *Osebergfunnet Bind IV. Tekstilene*, 15–131, Museum of Cultural History, University of Oslo, Oslo.
- Hraundal, T. J. (2013) The Rus in Arabic Sources: Cultural Contacts and Identity. Dissertation for the degree of Philosophiae doctor (PhD), Centre for Medieval Studies, University of Bergen, Bergen.
- Hundt, H. J. (1967) Die Textilfunde. In P. Paulsen (ed.), *Alamannische Adelsgräber von Niederstotzingen* (Kreis Heidenheim), Veröffentlichungen d. Staatl. Amten Denkmalpflege, 12/11, 7, Müller u. Gräff, Stuttgart.
- Hårdh, B (2007) Oriental-Scandinavian Contacts on the Volga as Manifested by Silver Rings and Weight Systems. In J. Graham-Campbell and G. Williams (eds), *Silver Economy in the Viking Age*, 135–147, Left Coast Press, CA.
- Ibn Khaldun (1989) *Prolegomena. En introduktion till världshistorien (Al-Muqaddima)*. Translated to Swedish from Arabic by Ingvar Rydberg, Alhambra, Lund.
- Ierusalemkaja, A. (1996) *Die gräber der Moščevoj Balka. Frühmittelalterliche Funde an der Nordkaukasischen Seidenstrasse*, München.
- Ingstad, A. S. (1988) Textiles from Oseberg, Gokstad and Kaupang. In L. Bender Jørgensen, B. Magnus, and E. Munksgaard (eds), *Archaeological Textiles. Report from the 2nd NESAT Symposium 1–4. V. 1984*, 133–148, Arkæologisk Institut, Københavns Universitet, København.
- Jacoby, D. (1992) Silk in western Byzantium before the fourth crusade, In B. Albrecht (ed.), *Byzantinische Zeitschrift* 84–85, 452–500, Walter de Gruyter, Bonn.
- Jacoby, D. (2000) Diplomacy, Trade, Shipping and Espionage Between Byzantium and Egypt in the Twelfth Century. In C. Scholz and G. Makris (eds), *Miscellanea für Peter Schreiner zu seinem 60. Geburtstag*, ByzArch 19, München-Leipzig
- Jacoby, D. (2004) Silk Economics and Cross-Cultural Artistic Interaction: Byzantium, the Muslim World, and the Christian West, *Dumbarton Oaks Papers* 58, 197–240.
- Jones, A. H. M. (1949) Tyre. In M. Cary, J. W. Denniston, A. D. Nock, W. D. Ross and H. H. Scullard (eds), *The Oxford Classical Dictionary*, Clarendon Press, Oxford.
- Jonsson, K. (1987) *Viking-Age Hoards and Late Anglo-Saxon Coins: a Study in Honour of Bror Emil*

Hildebrand's *Anglosachsiska mynt*, Stockholm.

- Jørgensen, L. (1991) Våbengrave og krigeraristokrati. Etableringen af en centralmagt på Bornholm i 6–8 århundre. In P. Mortensen and B. M. Rasmussen (eds), *Høvdingesamfund og kongemagt. Fra stamme til stat i Danmark*, bind 2. *Jysk arkæologisk selskabs skrifter* XXII:2. 109–124, Højbjerg.
- Kaplan, F. I. (1954) The Decline of the Khazars and the Rise of the Varangians, *American Slavic and East European Review* 13:1, 1–10.
- Karlsson, L. (1983) *Nordisk Form. Om djuornamentik*, Statens Historiska museum Studies 3, Stockholm.
- Kennedy, H. (1981) Central Government and Provincial Elites in the Early Abbasid caliphate. *Bulletin of the School of Oriental and African Studies, University of London* 44:1, 26–38.
- Kertzner, D. I. (1988) *Ritual, Politics and Power*, Yale University Press, New Haven.
- Keßler, P. T. (1940) Merowingisches Fürstengrab von Planig in Rheinhessen, *Mainzer Zeitschrift* 35, 1–12.
- Khazaei, H. (2001) *Funn av kufiske mynter fra vikingtiden i Norge med: A Catalogue of cufic coins found in Norway*, Avhandling for graden Master of Philosophy ved Senter for studier i vikingtid og middelalder, Universitetet i Oslo våren 2001, Oslo.
- Kilger, K. (2007) Kaupang from Afar: Aspects of the Interpretation of Dirham Finds in Northern and Eastern Europe between the late 8th and Early 10th Centuries. In D. Skre (ed.), *Means of Exchange. Dealing with Silver in the Viking Age* Kaupang Excavation Project Publication Series 2, Norske Oldfunn XXIII, 199–252, Oslo.
- King James Bible Online (2012) http://www.kingjamesbibleonline.org/1611_Isaiah-22-21/09.11.2012
- Knirk, J. (1999) Runer i Hagia Sofia i Istanbul. In J. Knirk (ed.), *Nytt om runer* 14, 26–27, Oslo.
- Kortner, O., Munthe, P. and Tveterås, E. (eds) (1989) *Store Norske Leksikon* Vol. 9, Kunnskapsforlaget, Oslo.
- Kovalev, R. K. (2001) The Infrastructure of the Northern part of the 'Fur Road' between the Middle Volga and the East During the Middle Ages, *Archivum Eurasiae Medii Aevi* 11, 25–64.
- Krafft, S. (1955) *Fra Osebergfunnets tekstiler. Fragmenter av billedvev og silkestoffer med rekonstruerte mønstre*, Oslo.
- Krogh, K. (1993) *Gåden om kong Gorms grav. Historien om nordhøjen i Jelling*, Vikingekongernes monumenter i Jelling Bind I, Carlsbergfondet and Nationalmuseet, Poul Kristensens Forlag, København.
- Krogh, K. J. and Leth-Larsen, B. (2007) *Hedensk og Kristent. Fundene fra den kongelige gravhøj i Jelling*. Vikingekongernes monumenter i Jelling Bind II, Carlsbergfondet and Nationalmuseet, København.
- Krongaard Kristensen, H. (1998) Udgravningerne 1981 og 1984–85. In J. Hjeremind, M. Iversen and H. Krongaard Kristensen (eds), *Viborg Søndersø 1000–1300. Byarkæologiske undersøgelser 1981 og 1984–85*, Jysk arkæologisk selskabs skrifter XXXIV/Viborg stiftsmuseums skriftrække 2, Jysk Arkæologisk Selskab, Højbjerg.
- Laiou, A. (2002) *The Economic History of Byzantium: From the Seventh through the Fifteenth Century*, vol. 1, *Dumbarton Oaks Papers*, Washington.
- Laporte, J.-P. (1988) *Le trésor des Saints de Chelles*, Societe Archeologique et Historique de Chelles, Chelles.
- Larsson, A. (2007) *Klädd krigare, Skifte I skandinaviskt dräktkick kring år 1000*, Uppsala Universitet, Uppsala.
- Larsson, L. (1982) in Gräber und Siedlungsreste der jüngeren eisenzeit bei Önsvala im südwestlichen schonen, Schweden, *Acta Archaeologica* 52, 129–196, København.
- Lehtosalo-Hilander, P. (1982) *Luistari I. The Graves*, Suomen Muinaismuistoyhdistyksen Aikakauskirja 82:1, Helsinki.
- Lehtosalo-Hilander, P. (2000) *Fishermen, Farmers, Warriors and Traders. The Excavated Past of Eura*, Euran Kunta, Vammala.
- Liu, X. (1996) *Silk and Religion. An Exploration of Material Life and the Thought of People AD 600–1200*, Oxford University Press, Oxford.
- Lopez, R. S. (1945) Silk Industry in the Byzantine Empire. *Speculum* 20:1, 1–42.
- Lopez, R. S. (1978) Silk Industry in the Byzantine Empire. *Byzantium and the World Around it: Economic and Institutional Relations*, Variorum, London.

- Maniatis, G. (2001) The Domain of Private Guilds in the Byzantine Economy. Tenth to Fifteenth Centuries. *Dumbarton Oaks Papers* 55, 339–369.
- Maranci, C. (2001) Byzantium through Armenian Eyes: Cultural Appropriation and the Church of Zuart'noc, *Gesta* 40:2, 105–124.
- Marshak, B. I. (2003) The Decoration of Some Late Sasanian Silver Vessels and its Subject-matter. In V. S. Curtis, R. Hillenbrand and J. M. Rogers (eds), *The Art and Archaeology of Ancient Persia. New Light on the Parthian and Sasanian Empires*, I. B. Tauris and British Institute of Persian Studies, London and New York.
- Marshak, B. I. (2006) The So-called Zandaniji Silks: Comparisons with the Art of Sogdia. In R. Rchorta (ed.), *Central Asian Textiles and Their Contexts in the Early Middle Ages*, 49–60, Reggisberger Berichte 9, Abegg-Stiftung Reggisberg.
- Martiniani-Reber, M. (1986) *Lyon, musée historique des tissus. Soieries sassanides, coptes et byzantines V–XI siècles*, Ministère de la Culture et de la Communication, Editions de la Reunion des musées nationaux, Paris.
- Marzinzik, S. (2008) Expressions of Power. Luxury Textiles from Early Medieval Northern Europe, *Textile Society of America Symposium Proceedings* 1, Textile Society of America, University of Nebraska, Lincoln.
- McAuliffe, J. D. (1995) *Abbasid Authority Affirmed*. In E. Yar-Shater (ed.), *The History of al-Tabari XXVII*, Univ. of Toronto, State University of New York Press, Albany.
- Melikian-Chirvani, A. S. (1991) *Parand and Parniyān Identified: The Royal Silks of Iran from Sasanian to Islamic Times*, Bulletin of the Asia Institute, 175–179, Wayne State University Press, Detroit.
- Melo, M. J. (2009) History of Natural Dyes in the Ancient Mediterranean World. In T. Bechtold and R. Mussak (eds), *Handbook of Natural Colorants*, 1–18, John Wiley and Sons Ltd, Chichester.
- Minorsky, V. (1982) *Hudud al-Alam. The Regions of the World. A Persian Geography 372 A.H–982 AD*. Translated and explained by V. Minorsky. (ed. C. E. Bosworth), Gibb, London.
- Moravcsik, G. and Jenkins, R. J. H. (eds and translation) (1967) *Constantine Porphyrogenitus De Administrando Imperio*, Dumbarton Oaks Texts 1, Washington.
- Morrell, A. B. (2007) *The Migration of Stitches and the Practice of Stitch as Movement*, Sarabhai Foundation, Ahmedabad.
- Morris, R. (2003) Beyond *De Ceremoniis*, In C. Cubitt (ed.), *Court Culture in the Early Middle Ages*, 235–254, Brepols, Turnhout.
- Motteau, J. (1985) L'habillement de la sépulture merovingienne de Perrusson (Indre-et-Loire), *Révue Archéologique du Centre de la France* 24, 256–257.
- Muthesius, A. (1990) The Impact of the Mediterranean Silk Trade on Western Europe before 1200 AD. In M. Gittinger and R. J. Adrosko (eds), *Textiles in Trade. Proceedings of The Textile Society of America Biennial Symposium, September 14–16 1990*, 126–132, Textile Society of America, Washington DC.
- Museum of Cultural History photobase (2013) <http://www.unimus.no/foto/#/P=kulturhistorisk.swf> 01.02.2013.
- Muthesius, A. (1992) Silken Diplomacy. In J. Shepard and S. Franklin (eds), *Byzantine Diplomacy. Papers from the Twenty-fourth Spring Symposium of Byzantine Studies, Cambridge, March 1990* Ashgate/Variorum, Farnham.
- Muthesius, A. (1995) *Studies in Byzantine and Islamic Silk Weaving*, Pindar Press, London.
- Muthesius, A. (1997) *Byzantine Silk Weaving AD 400 to 1200*, Verlag Fassbender, Vienna.
- Muthesius, A. (2004) *Studies in Silk in Byzantium*, Pindar Press, London.
- Muthesius, A. (2008) *Studies in Byzantine, Islamic and Near Eastern Silk Weaving*, Pindar Press, London.
- Myhre, B. (1993) The Beginning of the Viking Age. In A. Faulkes and R. Perkins (eds), *Viking Revaluations. Viking Society Centenary Symposium, 14–15 May 1992*, 182–216, Viking Society for Northern Research, London.
- Needels, H. L., Cassman, V. and Collins, M. J. (1986) Mordanted, Natural-Dyed Wool and Silk Fabrics. Light and Burial-Induced Changes in the Color and Tensile Properties, *Advances in Chemistry* 210, 199–210.
- Nicolaysen, N. (1882) *Langskibet fra Gokstad ved Sandefjord*, Cammermeyer, Kristiania.
- Nockert, M. (1982) Textilfunde von Önsvala, Nevishög KSP, Schonen, in Gräber und

- Siedlungsreste der jüngeren eisenzeit bei Önsvala im südwestlichen schonen, Schweden, anhang II, *Acta Archaeologica* 52, 202–208.
- Nockert, M. (1994) Textilierna från Tuna i Badelunda. In E. Nylén and B. Schönback (eds), *Tuna i Badelunda. Guld, kvinnor, Båtar*. 1, 112–117, Västerås Kulturnämnds skriftserie 27, Västerås.
- Nockert, M. (1997) Analyser av organiskt material från gravorna på Vivallen. Textilier. In I. Zachrisson (ed.), *Möten i gränsland. Samer och germaner i Mellanskandinavien*, 235, Statens Historiska Museum Monographs 4, Stockholm.
- Nockert, M. (2006) Siden. In A. E. Christensen and M. Nockert (eds), *Osebergfunnet bind IV Tekstilene*, 277–337. Kulturhistorisk museum, Universitetet i Oslo, Oslo.
- Noonan, T. S. (1992) Fluctuations in Islamic Trade with Eastern Europe during the Viking Age, *Harvard Ukrainian Studies* 16:3/4, 237–256.
- Østergård, E. (1991) Textilfragmenterne fra Mammengraven. In M. Iversen (ed.), *Grav, kunst og samfund I vikingetid*, 123–138, Viborg stiftsmuseums række bind 1 and Jysk Arkæologisk Selskabs Skrifter XXVIII, Jysk Arkæologisk Selskab, Århus.
- Otafky, K. (1998) Zur Kunsthistorischen Einordnung der Stoffe, *Eintlang der Seidenstraße. Frömittelalterliche Kunst zwischen Persien und China in der Abegg-Stiftung. Riggisberger Berichte* 6, 119–214.
- Pedersen, A. (2006) Ancient Mounds for New Graves. In A. Andrén, K. Jennbert. and C. Raudvere (eds), *Old Norse Religion in Long-term Perspectives. Origins, Changes and Interactions*, Nordic Academic Press, Lund.
- Petersen, M. (1998) Tekstiler. In J. Hjerminde, M. Iversen and H. Krøgaard Kristensen (eds), *Viborg Sønderlø 1000–1300. Byarkæologiske undersøgelser 1981 og 1984–85*, Jysk arkæologisk selskabs skrifter XXXIV/Viborg stiftsmuseums skrifttrække 2, Jysk Arkæologisk Selskab, Højbjerg.
- Pfister, R. (1948) Le Role de l'Iran dans les textiles d'Antioch, *Ars Islamica* 13, 46–74.
- Piltz, E. (1997) Middle Byzantine Court Costume. In H. P. Maguire (ed.), *Byzantine Court Culture from 829 to 1204*, Dumbarton Oaks Papers, Washington
- Pritchard, F. (1988) Silk Braids and Textiles of the Viking Age from Dublin. In L. Bender Jørgensen, B. Magnus and E. Munksgaard (eds), *Archaeological Textiles. Report from the 2nd NESAT Symposium 1–4.V 1984*, 149–161, Arkæologisk Institut, Københavns Universitet, København.
- Qaddumi, G. (1996) *Book of Gifts and Rarities*, Harvard Middle Eastern Monographs, Harvard.
- Raknes-Pedersen, I. (1988) The Analyses of the Textiles from Blindheim, Giske. In L. Bender Jørgensen, B. Magnus and E. Munksgaard (eds), *Archaeological Textiles. Report from the 2nd NESAT symposium, I–V. 1984*, 116–125, Arkæologisk Institut, Københavns Universitet.
- Rosenqvist, A. M. (1969) Rapport om arbeid med analyser av Osebergtekstiler. *Universitetets Oldsaksamling Årbok 1965–1966*, 287–300.
- Raspopova, V. I. (2006) Textiles Represented in Sogdian Murals. In R. Schorta (ed.), *Central Asian Textiles and Their Contexts in the Early Middle Ages*, 61–74, Reggisberger Berichte 9, Abegg-Stiftung, Reggisberg.
- Rispling, G., Blackburn, M. and Jonsson, K. (2007) Catalogue of the Coins. In D. Skre (ed.), *Means of Exchange. Dealing with Silver in the Viking Age*, Kaupang Excavation Project Publication Series 2, Norske Oldfunn XXIII, 75–93, Oslo.
- Roesdahl, E. (1994) *Vikingerne verden. Vikingerne hjemme og ude*, Gyldendal, København.
- Schetelig, H. (1909) Fortegnelse over de til Bergens museum i 1908 indkomne saker ældre end reformationen. In J. Holmboe (ed.), *Bergens Museums Årbok (BMÅ)* 17, 1–62.
- Schlabow, K. (1958) Textilfunde. In K. G. Böhner (ed.), *Das Grab eines fränkischen Herrn aus Morken im Rheinland, Neue Ausgrabungen in Deutschland*, 452–468, Berlin.
- Schlabow, K. (1976) *Textilfunde der Eisenzeit in Norddeutschland*, Karl Wacholtz, Neumünster.
- Schönback, B. (1994) Grav 48, grav 75. In E. Nylén. and B. Schönback (eds), *Tuna i Badelunda. Guld, kvinnor, Båtar*. 2, 108–126, Västerås Kulturnämnds skriftserie 30, Västerås.
- Serjeant, R. B. (1972) *Islamic Textiles. Material for a History up to the Mongol Conquest*, Librairie Du Liban, Beirut.
- Sevcenko, I. (1992) Re-reading Constantine Porphyrogenitus in Byzantine Diplomacy. In J. Shephard and J. Franklin (eds), *Byzantine Diplomacy. Papers from the Twenty-fourth Spring Symposium of Byzantine Studies, Cambridge, March 1990*, 167–195, Variorum, Aldershot.
- Schedin, P. (2000) *Möten med Värmland. Om kontakter under järnåldern*, Gotarc Gothenburg

Archaeological Theses Series B 14, Gothenburg.

- Sheng, A. (1998) Innovation in Textile Techniques on China's Northwest Frontier, 500–700 AD, *Asia Major* 3:11, 117–158.
- Shepherd, D. G (1981) Zandaniji Revisited. In S. Müller-Christensen, M. Flury-Lemberg and K. Stolleis (eds), *Documenta Textilia. Festschrift für Sigrd Müller-Christensen*, Deutscher Kunstverlag, Munich.
- Shepherd, D. G. and Henning, W. B. (1959) Zandaniji Identified? In R. Ettinghausen (ed.), *Aus der Welt der islamischen Kunst. Festschrift für Ernst Kühnel zum 75 Geburtstag am 26.10.1957*, 15–40, Berlin
- Shetelig, H. (1917) Graven. In A. W. Brøgger, H. Falk. and H. Schetelig (eds), *Osebergfundet bind I*, 209–278, Den Norske Stat, Kristiania.
- Sindbæk, S. (2007) The Small World of the Vikings: Networks in Early Medieval Communication and Exchange, *Norwegian Archaeological Review* 40:1, 59–74, Routledge, Oslo.
- Skre, D. (2007) A *Kaupang in Skiringssal*, Kaupang Excavation Project Publication Series 1, Norske Oldfunn XXII, Aarhus University Press and The Kaupang Excavation Project, University of Oslo.
- Skre, D. (2007) *Means of Exchange. Dealing with silver in the Viking Age*, Kaupang Excavation Project Publication Series 2, Norske Oldfunn XXIII, The Kaupang Excavation Project, University of Oslo.
- Skre, D. (2011) *Things from the Town. Artefacts and Inhabitants in Viking-age Kaupang*. Kaupang Excavation Project Publication Series 3, Norske Oldfunn XXIV, Aarhus University Press and The Kaupang Excavation Project, University of Oslo.
- Solberg, B. (2000) *Jernalderen i Norge. Ca. 500 f.kr.–1030 e.kr.*, Cappelen Akademisk, Oslo.
- Squatriti, P. (2007) *The Complete Works of Liutprand of Cremona*, Medieval Texts in Translation, The Catholic University of America Press.
- Statens Historiska Museets database (2012) [http://mis.historiska.se/mis/sok/resultat_foremal.asp?](http://mis.historiska.se/mis/sok/resultat_foremal.asp?invnr=26042&andsamlomr=0&andsort=ASC&orderby=lokal_andqtype=fandsearch=1&andsm=0_3.26)
- Stenberger, M. (1962) Das graberfeldt bei Ihre im Kirchspiel Hellvi auf Gotland. Der Wikingerzeitliche Abschnitt. In C. J. Becker (ed.), *Acta Archaeologica XXXII*, 1–134.
- Stephenson, P. (2012) Translated Excerpts. *Constantine Porphyrogenitus, De Administrando Imperio*, Byzantine Relations with Northern Peoples in the Tenth Century <http://homepage.mac.com/paulstephenson/trans/dai2.html>, 22.03.2012.
- Stillman, Y. K. (2000) *Arab Dress from the Dawn of Islam to Modern Times. A Short History*. In N. A. Stillman (ed.), *Themes in Islamic Studies* 2, Brill, Leiden and Boston.
- Stolpe, H. (1874) *Björkö-fyndet. Beskrifning öfver fornsaker från nordens yngre jernalder funna på Björkö i Mälaren. Redogörelse för undersökningarna under åren 1871–1873*, P. A. Norstedt and Söner, Stockholm.
- Strömberg, E., Hoffmann, M. and Geijer, A. (1974) *Nordisk textiltknisk terminologi: förindustriell vävnadsproduktion: definitioner på svenska och synonymer på danska, isländska, norska och finska samt på engelska, franska och tyska*, Tanum-Norli, Oslo.
- Sturluson, S. (1979) *Norges kongesagaer* (F. Hødnebo, D. A. Seip, A. Holtmark. and H. Magerøy, eds), Gyldendal norsk forlag, Oslo.
- Svärdström, E. (1970) Runorna i Hagia Sofia. In B. Gräslund. and I. Swartling (eds), *Fornvännen, Tidskrift för svensk antikvarisk forskning* 65, 247–249, Royal Academy of Letters, History and Antiquities/Swedish Archaeological Association, Stockholm.
- Tanner, N. P. (1990) *Decrees of the Ecumenical Councils* 1, Sheed and Ward, London.
- Tomanterä, L (1978) Appendix 2. In T. Nallimaa-Luoto *Tampereen Vilusenharju – nuoremman rautakauden kalmisto Pirkkanmaalla*. Master's thesis, University of Turku. Karhunhammas 3, Turku.
- Tunmark-Nylén, L. (1995–2006) *Die Wikingerzeit Gotlands I–IV*, Kungl. Vitterhets historie och antikvitets akademien, Stockholm.
- Vanden Berghe, I. (2010) *Analysis Report DI: 2010.10808*, Koninklijk instituut voor het kunstpatrimonium, Brussel.
- Vedeler, M. (2011) Fra silkeveien til Oseberg. In B. Solli, Z. Glørstad, L. Melheim and E. Mikkelsen (eds), *Viking. Norsk arkeologisk årbok LXXIV*, 137–148.
- Vedeler, M. (2013), New light on samite silk from Oseberg. In J. Bank-Burgess and C. Nübold

- (eds), *NESAT XI, The North European Symposium for Archaeological Textiles XI*, 181–188. VML, Rahden/Westf.
- Vedeler, M. (in press), Silk Finds from Oseberg: Production and Distribution of High Status Markers Across Ethnic Boundaries. In G. Hansen, S. Ashby and I. Baug (eds) *Everyday Products in the Middle Ages: Crafts, Consumption and the individual in Northern Europe c. AD 800–1600*, Oxbow Books, Oxford.
- Vedeler, M. (forthcoming) The Textiles from Gokstad. In J. Bill. (ed.), *Gokstad Revitalised Project*, Oslo.
- Vedeler, M. and Veseth, M. (2008) *Revisjon av tekstiler fra Oseberg (C55000) 2008*. Unpublished report in KHM archive, Oslo.
- Veseth, M. (2004) *Osebergtekstiler. Forberedende undersøkelser før et forsøk på separering av tekstilkaker*. Eksamensarbeid, konservatorprogrammet, Göteborgs Universitet. Institutionen för miljövetenskap och kulturvård, Göteborg.
- Vogelsang-Eastwood, G. (2006) A Preliminary Survey of Iranian Archaeological Sites with Textiles. In S. Schrenk (ed.), *Textiles in Situ: Their Find Spot in Egypt and Neighbouring Countries in the First Millennium CE*, 221–242, Riggisberger Berichte 13, Abegg-Stiftung, Riggisberg
- Vogelsang-Eastwood, G. (2010) The Coming of Islam and Its Influence on Dress. *Berg Encyclopedia of World Dress and Fashion, Volume 5: Central and Southwest Asia; Part 1: Overview of Dress and Fashion in Central and Southwest Asia*, 32–36, Berg, Oxford.
- Volbach, W. F. (1942) *I Tessuti del Museo Sacro Vaticano*. Catalogo Del Museo Sacro della Biblioteca Apostolica Vaticana III, Vatican state.
- Von Falke, O. (1913) *Kunstgeschichte der Seidenweberei*, Berlin.
- Walton, P. (1991) Dyes and Wools in Textiles from Mammen (Bjerringhøj), Denmark. In M. Iversen (ed.), *Grav, kunst og samfund I vikingetid*, 139–144, Viborg stiftsmuseums række bind 1 and Jysk Arkæologisk Selskabs Skrifter XXVIII, Jysk Arkæologisk Selskab, Århus.
- Wilckens, L. von. (1992) *Mittelalterliche Seidenstoffe*, Staatliche Museen zu Berlin, Kunstgewerbemuseum, Berlin.
- Wood, F. (2002) *The Silk Road, Two Thousand Years in the Heart of Asia*, University of California Press, Berkeley/Los Angeles.
- Zachrisson, I. (1997) Sväpta I näver, Möten i gränsland. *Samer och germaner i Mellanskandinavien*, 53–76, Statens Historiska Museum Monograph 4, Stockholm.
- Zubkova, E. S., Orfinskaya, O. V. and Mikhailov, K. A. (2009) Studies of the Textiles from the Excavation of Pskov in 2006. In E. B. Andersson Strand, M. Gleba, U. Mannering, C. Munkholt and M. Ringgard (eds), *North European Symposium for Archaeological Textiles X*, 291–298, Ancient Textiles Series 5, Oxbow Books, Oxford.